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THE FLOWERING PLANTS OF SOUTH AFRICA.

A MAGAZINE CONTAINING HAND-COLOURED FIGURES WITH DESCRIPTIONS OF THE
FLOWERING PLANTS INDIGENOUS TO SOUTH AFRICA.

EDITED BY

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VOL. XIX



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The veld which lies so desolate and bare  
Will blossom into cities white and fair,  
And pinnacles will pierce the desert air,  
And sparkle in the sun.

R. C. MACFIE'S "EX UNITATE VIRES."

~~~~~  
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TO
HENRY GEORGES FOURCADE
D.SC., F.R.S.S.AFR.,
OF
WITTE ELS BOSCH, CAPE PROVINCE,
FORESTER, BOTANIST, LAND SURVEYOR

THIS VOLUME IS GRATEFULLY DEDICATED IN RECOGNITION
OF HIS SEVERAL CONTRIBUTIONS TO BOTANICAL SCIENCE
AND PARTICULARLY FOR HIS VALUABLE EXPLORATORY
WORK ON THE FLORA OF KNYSNA AND THE NEIGHBOURING
DIVISIONS IN THE PROVINCE OF THE CAPE OF GOOD HOPE.

DIVISION OF PLANT INDUSTRY, PRETORIA,
October, 1939.



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STAPELIA ARENOSA.

Cape Province.

ASCLEPIADACEAE. Tribe STAPELIEAE.

STAPELIA Linn. ; Benth. et Hook. f. *Gen. Plant.* vol. ii. p. 784.

Stapelia arenosa Luckhoff in *S. Afr. Gardening and Country Life*, 1935, p. 96.

Stapelia arenosa was described for the first time as recently as May 1935, by Carl Luckhoff in *South African Gardening and Country Life*. At the same time the author described a very closely allied species, *S. Beukmanii*. Since that name had been used previously, the plant was renamed *S. stultitioides* Luckhoff in the second edition of *The Stapelieae* by White and Sloane, 1937, vol. 2, p. 452. Referring to *S. stultitioides*, Carl Luckhoff drew attention to its affinity with the two genera *Caralluma* R. Brown and *Stultitia* Phillips. This is by no means an isolated instance in the *Stapelieae* wherein a species shows intermediate characters between related genera. The decision in favour of placing the species in *Stapelia* was well founded. The characters given by the author in distinguishing *S. arenosa* from *S. stultitioides* are the smaller flowers and the absence of a corolla-annulus, "but instead just a faint thickening of the disk". There is also a slight difference in the shape of the outer corona-lobes. An examination of Figs. 389-391 in White and Sloane, *l.c.*, emphasises the similarities of the two species. One is left with the impression that the two plants may be forms of one variable species. This view has support since both were discovered in the Clanwilliam district and neither form has been recorded elsewhere. In order to throw further light on the problem, field work should be carried out during the flowering period. On the assumption that it is one variable species, the name *S. arenosa* has priority over *S. stultitioides*.

The plant (Dyer & Verdoorn, No. 3749) illustrated here was collected in July 1937 on a botanical expedition arranged by Mr. G. W. Reynolds. It was located in the Doorn River valley, along the road from Clanwilliam to Calvinia, growing on a rocky slope among shrublets. The area is rich in succulents, and in a small area *Haworthia* sp. *Hoodia* sp. *Crassula* sp. and *Caralluma incarnata* N. E. Br. were seen in plenty. As with most of the other succulents, *Stapelia arenosa* was then not in flower, and it was not until cuttings flowered at the Division of Plant Industry, Pretoria, in February of this year that its identity was established. The newly opened flowers show very little thickening on the united portion of the corolla, but the incipient annulus becomes slightly more prominent with age.

DESCRIPTION :—*Stems* tufted, up to about 10 cm. high, branched towards the base, 1-1.5 cm. thick, 4-angled, dull green, shortly pubescent; leaves rudimentary. *Peduncles* 2 or more on each stem arising from between the ridges. *Flowers* 2-4 together, opening successively. *Pedicels* about 5 mm. long, pubescent. *Sepals* about as long or slightly shorter than the pedicels, oblong-lanceolate, recurved towards the apex, pubescent on upper and lower surfaces. *Corolla* 3-3.5 cm. in diameter, outer surface pubescent and each lobe with a central rib, inner surface rugose, glabrous, mostly dark purple but whitish mottled round the corona, the united portion more or less flat with an incipient annulus; lobes spreading, 1.5-1.75 cm. long, 8-9 mm. wide at the base. *Outer corona* lobes 1.5 mm. long, ovate, sub-acute, furnished with a few hairs; *inner corona* lobes partly incumbent on the backs of the anthers with erect tips and dorsal wing-like processes radiating nearly the same distance as the outer corona lobes. (National Herbarium, Pretoria, No. 23,391.)—R. A. DYER.

PLATE 721.—Fig. 1, staminal column with inner and outer coronas.
F.P.S.A., 1939.



CARALLUMA PRUINOSA.

Little Namaqualand.

ASCLEPIADACEAE. Tribe STAPELIEAE.

CARALLUMA *R. Br. ; Benth. et Hook. f. Gen. Plant.* vol. ii. p. 782.

Caralluma pruinosa *N. E. Brown, in Gard. Chron.* vol. xii. p. 370,
1892; *Fl. Cap.* vol. iv. sect. 1, p. 881 (1909).

Little Namaqualand, the home of *Caralluma pruinosa*, is now within comparatively easy reach of the Cape Peninsula by road, but this was certainly not the case in Masson's time. Masson collected the type plant towards the end of the eighteenth century "from dry parts of Namaqualand among shrublets". It was not until it flowered at Kew in 1796, however, that he described and figured it (page 24 and Plate 41) in his book *Stapeliae Novae* under the name *Stapelia pruinosa*. Nearly one hundred years later N. E. Brown transferred it to the genus *Caralluma*.

The specimen figured now was discovered on the same expedition mentioned under Plate 721 referring to *Stapelia arenosa*, in a similar environment to that recorded by Masson. It was about 15 miles north-west of Steinkopf, on a rocky hillside which forms part of the Koosies Mountains. This was one of the good finds of the expedition. Incidentally the trip was most interesting to all members of the party, since none had any personal knowledge of that area, including the remote part known as the Richtersveld, which was penetrated under the able guidance of Mr. Piet van Heerde of Springbok.

The interior surface of the flowers of *Caralluma pruinosa* is covered with short, white, curly hairs which give it the appearance of "white hoar-frost", on which feature Masson based the name. Unlike the majority of the *Stapelieae*, the younger branches of this species are generously covered with flowers during a period of three or four months (based on

observations at the National Herbarium, Pretoria, where our specimens flowered in 1937-38). The colour of the flowers, apart from the white hairs, was very dark purple or nearly black. For this reason there was some doubt as to whether it should be referred to the variety *nigra* Luckhoff. Since the colour varies somewhat in most species of this group as a whole, the difference between the typical form, which is dark purple-brown, and the variety, which is black, seems insufficient in itself to warrant varietal separation. The supporting character of the variety given by the author is the slightly smaller size of the flower, but this also is a variable character even on the same plant. It is a matter of personal choice whether one uses the varietal name or not and possibly the writer will be accused in this and in other cases of holding too broad a view of species.

DESCRIPTION :—A bushy succulent usually about 25 cm. high, greyish-green, tinged with purple; branches towards the base up to 2.5 cm. thick, 4-sided with the faces almost flat or with a central groove; angles rounded, in the young stage furnished with rudimentary leaves. *Flowers* produced towards the ends of the branches between the angles in groups of 2-3, rarely solitary, opening successively, shortly pedicellate. *Sepals* 1 mm. long, lanceolate, acute. *Corolla* in bud 5-angled, obtuse, when expanded about 1 cm. in diam., very dark purple or nearly black and with white curly hairs on the upper surface; lobes 4 mm. long, deltoid-lanceolate. *Outer corona* lobes united into a tube 1.5 mm. deep, 2 mm. diam., white below merging into reddish-black above, bifid; *inner corona* lobes 1.25 mm. long, oblong, minutely notched at the apex, incumbent on the backs of the anthers and slightly exceeding them. (National Herbarium, Pretoria, No. 23,392.)—R. A. DYER.

PLATE 722.—Fig. 1, longitudinal section of flower; 2, staminal column surrounded by outer and inner coronas.

F.P.S.A., 1939.



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EUPHORBIA WOODII.

Natal.

EUPHORBIACEAE. Tribe EUPHORBIEAE.

EUPHORBIA L. ; *Benth. et Hook. f. Gen. Plant.* vol iii. p. 258.

Euphorbia Woodii N. E. Br. in *Fl. Cap.* vol. v. sect. 2, p. 315
(1915).

In the text dealing with *Euphorbia gatbergensis* under Plate 649 of this work, reference was made to *E. Woodii*. It was stated that the plants known by the names *E. Woodii* and *E. passa*, both published for the first time by Brown in the *Flora Capensis*, Vol. 5, pt. 2, pp. 315 and 313 respectively, are not specifically distinct. The differences noted by the author are inconstant under natural conditions. The name *E. Woodii* was given by Brown to plants collected near Durban by Dr. J. Medley Wood, founder and for many years curator of the Natal Herbarium, Durban. The name *E. passa* was given to a plant with an interesting history. According to Brown it was introduced into cultivation by Cooper (his father-in-law) in 1862. It was first figured under the name *E. pugniformis* Boiss. Later, after changing ownership, the identical plant was figured as *E. procumbens* Mill., an earlier synonym of *E. pugniformis* Boiss. Subsequently Brown showed these identifications to be incorrect and renamed the plant *E. passa*. Cooper, however, could not remember definitely the locality in which he had collected the plant. It was not until Medley Wood sent photographs and branches in fluid of a plant collected near Scottsburg, which agreed in every essential respect with Cooper's plant, that Brown felt justified in localising the species. His conjecture had strong support, since Cooper had collected plants extensively on the Natal coast during 1862. Medley Wood was thus intimately associated with both *E. passa* and *E.*

Woodii. Hence in selecting the specific epithet to include both forms, *E. Woodii* seemed the obvious choice.

The plant figured here was collected by Mr. Kuschke at Park Rynie, forty miles south of Durban, Natal, and was transferred by him to a rockery in Magaliesberg, Transvaal. The illustration was made when it flowered in the following February.

The headquarters of the species appears to be near Park Rynie, where it grows commonly in the short runner grass, *Dactyloctenium aegyptium* (L.) Richt. on the sand dunes. In addition to moisture-laden sea breezes, *E. Woodii* is influenced by an average annual rainfall of about 40 inches. It is not altogether surprising, therefore, that under cultivation it is tolerant of more liberal watering than the majority of South African succulent plants. In fact, if the water supply is reduced too drastically, all the branches shrivel and fall off at one time. Under natural conditions only a few of the older branches die off annually. The branches vary considerably in length and thickness, depending on the site. Only rarely, and then probably due to injury, does the main body of the plant branch.

DESCRIPTION:—A dwarf *succulent*. *Stem* or body of the plant mostly below ground passing insensibly into a slender root, obconic up to 12 or 15 cm. thick, producing a series of branches from the circumference of the truncate or slightly depressed tuberculate central area; the tubercles radiating from the centre or from a central groove, persisting on the older portions of the stem. *Branches* 20–40, up to about 20 cm. long, 1–1.5 cm. thick, cylindric, tuberculate, bright green; tubercles rhomboid, about 1 cm. long, bearing rudimentary leaves towards the apex; leaves linear, acute, concave above. *Involucres* on peduncles 0.3–1.5 cm. long, borne both on the branches and on the central branchless area in the axils of tubercles, cup-shaped, glabrous with 5 glands and 5-fringed lobes; peduncles rarely persisting more than one season; glands horizontally spreading, 2–2.5 mm. in their greater diam., somewhat transversely oblong or elliptic oblong, entire or crenate on the outer margin which may also be more deeply notched about the middle, yellow. *Ovary* 3-angled, thinly pubescent with long hairs, subsessile or very shortly pedicellate; styles united into a stout column with broad obcordate recurved-spreading stigmas. *Capsule* obtusely 3-angled, about 7 mm. diam., seed rugose, brown-black. (National Herbarium, Pretoria, No. 23,396.)—R. A. DYER.

PLATE 723.—Figs. 1 and 3, terminal portions of mature branches; 2, young branch; 4, cyathium; 5, gynoeceium.
F.P.S.A., 1939.



STAPELIA WOODII.

Natal.

ASCLEPIADACEAE. Tribe STAPELIEAE.

STAPELIA Linn. ; Benth. et Hook. f. Gen. Plant. vol. ii. p. 784.

Stapelia Woodii N. E. Br. in Gard. Chron. vol. xi. p. 554 (1892); Fl.
Cap. vol. iv. sect. 1, p. 974 (1909).

It will be observed that two plants named in honour of Dr. J. Medley Wood appear in this part. The other, *Euphorbia Woodii*, may be seen on Plate 723. *Stapelia Woodii* was discovered by Medley Wood about the year 1890 near Noodsberg, New Hanover district, Natal. Specimens from there were described by N. E. Brown in the *Gardeners' Chronicle* in 1892, but it was not figured until 1937, when, by permission of the Bentham Trustees, a drawing by M. Smith was reproduced by White and Sloane in *Stapelieae*. Within recent years the species has been recorded both in the Weenen and Estcourt districts of Natal. The specimen figured here was received from the former locality by Mr. J. E. Repton, whose plant flowered in Pretoria in February 1938. Like many other members of the *Stapelieae*, the species flourishes best in the field under the protection of scrub bushes which afford moderate shade.

As has been pointed out in other works, the coronal structure of *Stapelia Woodii* shows a decided affinity with that of species of *Caralluma*. On the other hand, the convex disk, which supports the corona, is strongly reminiscent of the disk of *Duvalia*. It is interesting to note that the nearest related species, *Stapelia Molonyae* White et Sloane, is found about 1500 miles farther north in Kenya.

DESCRIPTION :—A small succulent plant forming small clumps of stems up to about 9 cm. high and 1.5 cm. thick, 4-angled with ascending spreading teeth, light green sometimes

mottled; teeth sharply pointed at first, occasionally with two small points below the apex, withering with age and then obtuse. *Flowers* 3 or more, successively produced from near the base of the young branches. *Pedicels* 2-3 cm. long, glabrous. *Sepals* 5 mm. long, lanceolate, acute, glabrous. *Corolla* about 3.5 cm. in diameter with a raised disk supporting the corona, the lobes spreading horizontally, glabrous on both surfaces, rugose on the inner surface, more or less 5 cm. long, and 8 mm. broad at the base, ovate, sub-acute, ciliate with dark purple clavate vibratile hairs, almost black above. *Outer corona-lobes* horizontally spreading, 1.5 mm. long, 1.5 mm. broad, almost quadrate, irregularly and bluntly toothed at the apex, with 2 ridges and canaliculate down the middle, dark purple brown; *inner corona-lobes* incumbent on the backs of the anthers, connivent, produced into short subulate suberect points at the apex, ovate at the base, with a short blunt tubercle, purple-brown. (National Herbarium, Pretoria, No. 24,196.)—R. A. DYER.

PLATE 724.—Fig. 1, cross section of corolla disk, 2, outer and inner corona-lobes.

F.P.S.A., 1939.



HABENARIA MALACOPHYLLA.

Cape Province, Transvaal.

ORCHIDACEAE. Tribe OPHRYDEAE.

HABENARIA Willd. ; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 624.

Habenaria malacophylla *Reichb. f. Otia Bot. Hamb.* vol. ii. p. 97 ;
Fl. Cap. vol. v. sect. 3, p. 126.

The specimen figured was collected by Mr. A. E. Grewcock at Haenertsburg in the north-eastern Transvaal. The species was found in undergrowth close to the edge of the forest, and was associated with *Disperis Fanniniae* and *Liparis Bowkeri*, which we illustrated on Plates 308 and 587 respectively.

Habenaria malacophylla, like several other species of orchids, has a wide range of distribution. It was collected on the Katberg in the Stockenstroom district, and extends northwards through the Transkei, Griqualand East, Natal, to the mountains of the north-eastern Transvaal. The species has also been recorded from east and west tropical Africa.

On the Haenertsburg the species is found in flower during the month of February.

DESCRIPTION :—A herb 30–50 cm. high with ovoid tubers about 3 cm. long. *Leaves* 7–8, cauline, 5–12 cm. long, 2–4 cm. broad, sessile, elliptic-lanceolate, sub-acuminate, glabrous. *Inflorescence* 15–30-flowered, 10–16 cm. long, somewhat lax. *Bracts* about 1.5 cm. long, gradually decreasing in size upwards, narrowly ovate-lanceolate. *Flowers* green. *Pedicel* (including ovary) up to 1.5 cm. long. *Dorsal sepal* about 5 mm. long, ovate, obtuse or minutely emarginate; lateral sepals 6 mm. long, spreading, obliquely ovate-oblong. *Lateral petals* 2-partite; upper lobe linear-oblong, subacute, adpressed to the inner margin of the dorsal sepal; lower lobe subfiliform, curved; lip about 6 mm. long, 3-lobed, with the

lobes filiform and with the two lateral lobes spreading and slightly shorter than the middle lobe; spur about 1 cm. long, curved. *Column* 2 mm. long; stigmas nearly 2 mm. long, oblong, obtuse. (National Herbarium, Pretoria, No. 21,055).

PLATE 725.—Fig. 1, front view of complete flower; 2, dorsal sepal; 3, lateral sepal; 4, lateral petal; 5, lip with spur; 6, anthers and stigmas.

F.P.S.A., 1939.



WATSONIA BULLBILLIFERA

Cape Province.

IRIDACEAE. Tribe Ixieae.WATSONIA *Miller ; Benth. et Hook. f. Gen. Plant. vol. iii. p. 705.*

Watsonia *bulbillifera Mathews et L. Bolus in Annals of the Bolus Herb. vol. iii. p. 140.*

This *Watsonia* was collected at Joostenberg in the Paarl Division, and has flowered in the National Botanic Gardens, Kirstenbosch, for many years. For the horticulturist it is not so successful as many of the other species, owing to its tall lax spikes, with few flowers open at one time, but to the botanist it is one of the most interesting species. It is closely allied to *W. Meriana* Miller, which is fairly frequent on parts of the Cape Peninsula and extends up the west coastal belt as far as Van Rhynsdorp; but whereas *W. Meriana* occasionally produces a few bulbils in the axils of the lower leaves, *W. bulbillifera* produces them in great numbers in the axils of the upper cauline leaves and bracts. Few capsules are formed, these usually producing only one or two ripe seeds, and in the axil of the same bract a few bulbils are nearly always found.

The internal structure of a bulbil is exactly like that of a young corm. As the flowering stem dries the bulbils fall to the ground and give rise to new plants.

DESCRIPTION :—*Plant* up to 2·1 metres, usually about 1·8 m. high; stem 0·9–1·1 cm. diam. *Corm* more or less placenteriform, 7 cm. long, 4 cm. diam., tunics composed of thick fibres. *Leaves* 5–6, basal, ensiform, 52–63 cm. long, up to 6 cm. broad; 3–5 cauline, sheath up to 23 cm. long, free part up to 14 cm. long, uppermost up to 6 cm. long. *Inflorescence* lax, 49·5–64 cm. long; internodes 3–4 cm. long, branched, branches scarcely diverging, the lowest up to

53 cm. long, the upper up to 8 cm. long, a few additional 1-flowered branches above. *Bract* membranous in upper half, 2.2–1.7 cm. long. *Bracteoles* completely fused, as long as bract. *Perianth* patent-erect, brick-red, pale outside, inside of tube longitudinally white-striped, 6.7 cm. long, expanded flower 3.4 cm. diam.; lower part of tube filiform, 1.8 cm. long, 3–5 mm. diam., upper part cylindrical, patent, up to 2.5 cm. long, 1 cm. diam. at mouth; segments scarcely patent, concave, 2.4 cm. long, exterior oblong, 1.3 cm. broad, interior obovate, slightly lobed at base, 1.4 cm. broad. *Stamens* arcuate, filaments 3.2 cm. long, anthers dark purple, exserted, 1 cm. long, pollen pale purple. *Stigma* just exserted; capsule cylindrical, 3 cm. long, 6 mm. diam., very rarely produced. *Bulbils* obliquely globose, rostrate, up to 2.4 cm. long, 1.5 cm. diam. at base, in fascicles (up to 28 to a fascicle) in axils of upper cauline leaves and bracts and borne to apex of flowering stem. (National Botanic Gardens, No. 707/13. Type in Bolus Herbarium.)—G. J. LEWIS.

PLATE. 726.—Fig. 1, plant, reduced; 2, corm, reduced; 3, upper part of leaf; 4, flowering spike; 5, flower laid open; 6, single style branch; 7, ripe capsule and bulbils; 8, half section of bulbil, longitudinal; 9, ripe seed.

F.P.S.A., 1939.



PLATE 727.

POLYSTACHYA ZULUENSIS.

Zululand.

ORCHIDACEAE. Tribe VANDEAE.

POLYSTACHYA Hook. *Exot. Fl.* t. 103; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 540.

Polystachya zuluensis L. Bolus, sp. nov.

Planta ad 36 cm. alta in *Vellozia* sp. epiphytica, racemo terminali fructifero foliisque emarcidis dum racemi laterales in vaginis caulinis orientes florent. *Pseudobulbi* multi crebri, anguste ovati, 1.5–2.7 cm. longi, basi ad 1.2 cm. diam.; hornotinus florens viridis, vaginis 5 siccis conspicue venosis apice truncatis 1.7–2.4 cm. longis vestitus. *Caulis* omnino vestitus, strictus, gracilis, ad 3 mm. diam., vaginis 2–3 basalibus truncatis, e reliquis foliorum disarticulatorum compositis 0.8–1 cm. longis, superioribus acutis vel obtusis membranaceis brunneis ad 5 cm. longis. *Folia* ad 6 visa, basi arte imbricata, inferiora patentia, superiora fere erecta, laminis conduplicatis linearibus superne leviter angustatis obtusis laete viridibus politis, textura firma, nervis primariis 5 inconspicuis 1.1–11.5 cm. longis ad 8 mm. latis. *Racemus terminalis* 3–5 cm. longus, ad 12-florus, floribus lilacinis, rhachilla pubescente, setis patentibus brevibus; laterales 6–7. *Bractee* late ovatae vel suborbiculares, 3–1 mm. longae. *Pedicelli* breves, fructiferi ad 8 mm. longi, parce pubescentes. *Sepalum impar* lineare, superne angustatum, obtusum, 7 mm. longum, basi 2.5 mm. latum; lateralia patentia, oblique ovata vel oblique oblonga, dimidio superiore angustata, cum impari basi parce pilosa, ad 4 mm. lata. *Petala* oblongo-obovata, 7 mm. longa, ad 3 mm. lata. *Labellum* circuitu late obovatum, obscure trilobum, lobis rotundatis 6 mm. longis ad 5 mm. latis. *Columna* lat. visa superne ampliata, 3 mm. longa, pede producto 3 mm. longo. *Anthera* suborbicularis. *Capsula* cylindrica, ad 2.5 cm. longa ad 3 mm. diam.

ZULULAND : Ubombo, Gerstner, *National Botanic Gardens*, No. 864/33.

The plant described was discovered by the Rev. J. Gerstner and communicated in flower by the Natal Herbarium in May 1933. A portion of the plant was grown at Kirstenbosch and leaves were produced on one pseudobulb in December 1933. The flowers are among the medium-sized in the South African species of *Polystachya*, and it differs from the rest of these chiefly in its straight and slender reed-like habit

of growth and its more numerous leaves. About six of the South African species have been figured, the last being *P. transvaalensis* Schltr. in Plate 297 of this work.

DESCRIPTION:—*Plant* up 36 cm. high, epiphytic on *Vellozia* sp., the terminal raceme in fruit and the leaves withered while the lateral racemes, arising in the axils of the cauline sheaths, are in bud or flower. *Pseudobulbs* many, crowded, narrowly ovate, 1.5–2.7 cm. long, base up to 1.2 cm. diam.; the current year's flowering pseudobulb green, clothed with 5 dry conspicuously veined sheaths, truncate at the apex, 1.7–2.4 cm. long. *Stem* entirely invested with sheaths, straight, slender, up to 3 mm. diam., the 2–3 basal sheaths composed of the remains of the disarticulated leaves, 0.8–1 cm. long, the upper ones acute or obtuse, membranous, brown, up to 5 cm. long. *Leaves* as many as 6 seen, closely imbricating at base, the lower spreading, the upper almost erect, the blades folded in the middle, linear, slightly narrowed upwards, obtuse, bright green, polished, the texture firm, the primary nerves 5, inconspicuous, 1.1–11.5 cm. long, up to 8 mm. broad. *Terminal raceme* 3–5 cm. long, up to 12-fl.; flowers mauve or lilac; the rhachilla pubescent with short spreading hairs; lateral racemes 6–7. *Bracts* broadly ovate or suborbicular, 3–1 mm. long. *Pedicels* short in the flowering stage, elongated to 8 mm. in fruit, sparingly pubescent. *Odd sepal* linear, narrowed upwards, obtuse, 7 mm. long, 2.5 mm. broad at the base; lateral sepals spreading, obliquely ovate or oblong, narrowed in the upper half, like the odd sepal sparingly pilose at the base, up to 4 mm. broad. *Petals* oblong-obovate, 7 mm. long, to 3 mm. broad. *Lip* broadly obovate in outline, obscurely 3-lobed; the lobes rounded, 6 mm. long, up to 5 mm. broad. *Column* viewed laterally widened upwards, 3 mm. long, the foot produced for 3 mm. *Anthers* suborbicular. *Capsule* cylindric, up to 2.5 cm. long, 3 mm. diam. (National Botanic Gardens, No. 864/33).—L. BOLUS.

PLATE 727.—Fig. 1, portion of plant with one pseudobulb in leaf; 2, an immature pseudobulb; 3, pseudobulb in flower; 4, withered leaves disjointed from the latter—natural size; 5, bract, $\times 3$; 6, fl., side view, $\times 2$; 7, fls., front view from different angles, $\times 3$; 8, fl., sepals and petals removed, side view, $\times 3$; 9, odd sepal; 10, side sepal; 11, petal; 12, lip, $\times 2$; 13, column, side view; 14, do., front view, foot removed, $\times 5$; 15, do., anther removed, $\times 7$; 16, pollinarium, enlarged.

F.P.S.A., 1939.



PLATE 728.

EULOPHIA ANTENNATA.

Zululand.

ORCHIDACEAE. Tribe VANDEAE.

EULOPHIA *R. Br. ex Lindley in Bot. Reg.* sub t. 686 (1823); *Benth. et Hook f. Gen. Plant.* vol. iii. p. 535.

Eulophia antennata *Schlechter in Engl. Bot. Jahrb.* vol. xxvi. p. 334;
Rolfe in Dyer Fl. Cap. vol. v. sect. 2, p. 42.

This species is among the least known of the South African *Eulophiae*. For no collection appears to have been recorded since Schlechter's discoveries were made, until the plant figured here was sent to us by Mr. H. Herre, Curator of the Stellenbosch University Botanic Gardens, in April, 1936. It was sent by Mrs. H. W. Bell Marley in December 1935 from Togoland, North Zululand. The plant has been compared with a specimen in the Bolus Herbarium of the collection from Inyamasan, Delagoa Bay (*Schlechter* 12,075), named by Schlechter *E. antennata*, with which it agrees fairly well except in its shorter stature and more luxuriantly developed leaves. The type-specimens are described as being "1-2 feet in height", and the leaves "reduced to short linear acuminate sheaths situated at the base of the stem, pallid". Schlechter also remarks that it is a "pallid and half-saprophytic leafless herb".

It is unusual in the genus, as represented in South Africa, to find the sepals so greatly exceeding the petals in length; and even more remarkable is their erect or nearly erect position, which no doubt suggested a resemblance to the antennae of insects and accounts for the specific name.

DESCRIPTION:—*Plant* 18 cm. high. *Leaves* 3 fully produced, the basal sheath-like, not fully developed during the flowering-period; blade linear, tapering downwards, acuminate; primary nerves 3, 2.5-16 cm. long, up to 8 mm. broad.

Scape 14–17 cm. long, up to 2 mm. diam.; sheath 1, placed below the middle or a little above the base of the scape, 6–8 mm. long. *Raceme* in early stage of development 4 cm. long, lax. *Bracts* acuminate, 6–8 mm. long. *Sepals* erect or suberect, converging towards the apex, narrow-spathulate, 2 cm. long, up to 3 mm. broad; side sepals slightly oblique. *Petals* directed forwards, linear-oval, 1.3–1.5 cm. long, to 4 mm. broad. *Lip* inferior, oblong in outline, 2 cm. long including the spur 3–4 mm. long, up to 1 cm. broad, lobed from above the middle, the side lobes rounded, the middle lobe truncate, the 3–5 verrucose keels extending to about the middle of the lobe, inconspicuously crested. *Column* 8 mm. long; anther suborbicular in outline, constricted a little above the middle, gland of orbicular pollinia arcuate.—
L. BOLUS. (Stellenbosch University Botanic Gardens, 846.)

PLATE 728.—Fig. 1, portion of plant with one pseudobulb in leaf; 2, portion of plant in flower—nat. size; 3, flower, side view; 4, odd sepal; 5, side sepal; 6, petal; 7, lip; 8, ditto, from another flower; 9, column and ovary, side view; 10, column, front view, $\times 2$; 11, column, front view, anther removed, $\times 3$; 12, anther, $\times 5$; 13, pollinarium, $\times 7$.

F.P.S.A., 1939.



PLATE 729.

NEOBAKERIA HETERANDRA.

Cape Province.

LILIACEAE. Tribe SCILLEAE.

NEOBAKERIA Schltr. in *Notizblatt. Bot. Gart. Berlin*, vol. ix. p. 149 (1924).

Neobakeria heterandra Isaac. sp. nov. ad *N. Visseriae* Barnes affinis sed foliis pustulatis et staminibus differt.

Bulbus ovoideus ad 1.4 cm. diam., tunicis membranaceis brunneis. *Folia* 2, subhumistrata, ovata, apice acuta, supra pustulis albis ornata, cum vagina ad 3.5 cm. longa, ad 1.3 cm. lata. *Pedunculus* in vaginis foliorum inclusus. *Corymbus* compressus, 2-6-florus. *Bracteae* spatulatae apicibus acutae, inferiores 1.5 cm. longae, 2.5 mm. latae, superiores paullo minores. *Pedicelli* albi vel roseo-albi, graciles, circa 7 mm. longi. *Perianthium* album vel roseum, tubo cylindrico, superne haud ampliato, ad 1.7 cm. longo, 1.5 mm. diam., segmentis spatulatis subacutis ad 6 mm. longis 1.5 mm. latis. *Filamenta* basi per 1 mm. connata, in fauce tubi inserta inaequilonga, 3 exteriora perianthia superantia, circa 8.5 mm. longa, cum basi connata, 3 interiora haud segmentis longiora circiter 6.5 mm. longa, antherae atratae, minutae. *Stylus* cylindricus demum stamina superans stigmate minuto. *Ovarium* viride, 4 mm. longum, 1.5 mm. diam.

VILLIERSDORP, CALEDON DIV. Stokoe, in *Bolus Herb.* 22,309.

The genus *Neobakeria*, created by Schlechter in 1924, consists of those species of *Polyxena* which formed the subgenus *Astemma*. This subgenus was considered distinct by Baker, who notes in his monograph in the *Flora Capensis* that he regarded it as more closely related to *Massonia*. *Neobakeria* is differentiated from *Polyxena* by the possession of uniseriate stamens.

When Schlechter founded the genus it comprised seven species: six new combinations and one new species—namely, *Neobakeria namaquensis* Schltr. Since then *Neobakeria Visseriae* Barnes has been described from the Clanwilliam Division. Under the name *Polyxena* a plate and description of *Neobakeria haemanthoides* (Bak.) Schltr. appeared in this work in 1922 (Plate 56).

For our material we are indebted to Mr. T. P. Stokoe, one of the most indefatigable collectors of the high mountain flora of the south-western Cape. The bulbs were collected in flower on the Louw's Hoek Mountain near Villiersdorp, Caledon Division, in April 1938.

DESCRIPTION :—*Bulb* ovoid, up to 1.4 cm. diam. covered with brown membranous tunics. *Leaves* 2, prostrate or ascending, ovate, apex acute, vaginate for 1 cm. at the base, the upper surface dotted with white pustules up to 3.5 mm. long (including the vaginate base), 1.3 cm. broad. *Peduncle* included. *Corymb* compressed, 2–6 flowered. *Bracts* spatulate with acute apices, the lower 1.5 cm. long, 2.5 mm. broad, the upper slightly smaller. *Pedicels* white or whitish-pink, slender, about 7 mm. long. *Perianth* white or pink, tube cylindrical, scarcely widened at the throat, up to 1.7 cm. long, 1.5 mm. diam. segments spatulate subacute up to 6 mm. long, 1.5 mm. broad. *Filaments* connate for 1 mm. at the base, inserted in the throat of the tube, unequal, 3 outer filaments overtopping the perianth-segments about 8.5 mm. long (including the connate basal portion), 3 inner scarcely longer than the perianth-segments, about 6.5 mm. long., anthers small, black. *Style* cylindrical at length overtopping the stamens, stigma small. *Ovary* green, 4 mm. long, 1.5 mm. broad.—F. M. ISAAC.

PLATE 729.—Fig. 1, plant, $\times 1$; 2, flower; 3, flower; 4, upper bract, $\times 2$; 5, flower, tube opened, $\times 3$; 6, gynoecium, $\times 3$; 7, perianth-segment, $\times 4$; 8, stigma and tip of style, $\times 10$; 9, leaf surface, $\times 5$; 10, pustule, $\times 10$.

F.P.S.A., 1939.



PLATE 730.

CRATEROSTIGMA WILMSII.

Transvaal, Orange Free State.

SCROPHULARIACEAE. Tribe GRATIOLEAE.

CRATEROSTIGMA Hochst. ; *Benth. et Hook. f. Gen. Plant.* vol. ii, p. 954.

Craterostigma Wilmsii *Engl. ex Diels in Engl. Bot. Jahrb.* vol. 26, p. 122 ;
Fl. Cap. vol. iv. sect. 2, p. 361.

On Plate 106 we figured a species of *Craterostigma* (*C. plantagineum*) which differs from that illustrated on the accompanying plate in having blue flowers. So far as our records go, *C. Wilmsii* appears to be confined to South Africa and to the higher altitudes of the eastern Orange Free State and the north-eastern Transvaal. The specimen figured was collected in January 1938 by Miss A. M. Bottomley, B.A., at Donkerpoort, east of Pretoria, and constitutes a new locality record. Like the second species mentioned above, it is well worth cultivation as a green-house plant, as it requires moist conditions, being a marsh plant in its native habitat. Miss Bottomley describes the habitat as a gentle slope with exposed rock surfaces and water seeping down between the rocks washing down sandy loam. Plants were growing in profusion and formed a striking picture against the bare rock. Associated with *Craterostigma Wilmsii* were several species of *Cyperaceae*, a species of *Selaginella* and a liverwort, the last having the same habit as the *Selaginella* of drying up in winter.

DESCRIPTION :—An acaulescent plant with a scape 12–17 cm. high. *Leaves* in a flat basal rosette, 2·5–4 cm. long, 0·5–1·3 cm. broad, lanceolate or lanceolate-ovate, obtuse, narrowed at the base, flat or somewhat concave on the upper surface, glabrous above. *Scapes* 1–3 from each rosette, simple or branched; bracts opposite, similar to the basal leaves but smaller. *Pedicels* as long or slightly longer than

the bracts, elongating in fruit, shortly pilose. *Calyx* 1 cm. long, shortly 5-lobed, with the lobes lanceolate, shortly pilose. *Corolla* bilabiate; lower lip dark red, 0·8 cm. long, 1·3 cm. broad, 3-lobed, with the lobes ovate and rounded, densely hirsute with purplish hairs at the base; upper lip white, 0·5 cm. long, 0·5 cm. broad, ovate, concave, notched at the apex. *Stamens* in 2 pairs; the upper pair attached to the lower lip; filaments of lower pair attached to a large yellow cushion, strongly deflexed, then bending upwards, with the cushion produced down the corolla-lobe as a somewhat raised line covered with golden hairs; anthers pilose. *Ovary* greenish, ovoid, glabrous; style simple, almost as long as the lower lip; stigma simple, flattened and broader than the style. (National Herbarium, Pretoria, No. 24,478).

Plate 730.—Fig. 1, median longitudinal section of a flower.
F.P.S.A., 1939.



PLATE 731.

ALOE FRAMESII.

Cape Province, Namaqualand.

LILIACEAE. Tribe ALOINEAE.

ALOE Linn., *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 776.

Aloe Framesii L. Bolus in *S. Afr. Gard. and Country Life* 1933, p. 140.

In the publication "South African Gardening and Country Life" appeared three descriptions of plants belonging to the genus *Aloe*—viz. *A. Framesii* L. Bolus (1933, p. 140); *A. amoena* Pillans (1933, p. 168); *A. khamiesensis* Pillans (1934, p. 25). The plants on which the descriptions were based were found from Clanwilliam in the south to north of Port Nolloth in Namaqualand.

Mr. G. W. Reynolds, in July 1937, made a special study in the veld of plants growing in different localities, and is inclined to the view that only one species is involved. Mr. Reynolds is of the opinion that *A. Framesii* and *A. amoena* are conspecific, and that perhaps *A. khamiesensis* might be considered a variety of *A. Framesii*—the difference being in the habit of growth. Specimens of plants are found on the sand-veld coastal belt at an altitude of only a few hundred feet above sea level, and extend to the mountainous areas 30–60 miles inland. In all the localities there is a remarkable uniformity in the colour of the flowers and the only variations are found in the habit of growth and the branching of the inflorescence. The plant we figure was collected by Mr. Reynolds three miles west of Clanwilliam.

DESCRIPTION:—Acaulescent plant with a basal rosette of leaves. *Leaves* up to 31 cm. long, 6 cm. broad at the base, lanceolate, acuminate, with the margins toothed, with whitish spots on the upper and under surfaces; teeth about 2 mm. long, up to 8 mm. apart, reddish. *Inflorescence* 70 cm. long. *Barren bracts* 1.7 cm. long, 1 cm. broad, ovate, acute. *Raceme*

36 cm. long. *Bracts* similar to the barren bracts but decreasing in size upwards. *Pedicels* bearing mature flowers 2·5 cm. long. *Perianth* scarlet red in bud, becoming more yellow on maturity; segments 3·5 cm. long, 0·9 cm. broad. *Stamens and style* slightly exserted. (National Herbarium, Pretoria, No. 24477.)

PLATE 731.—Fig. 1, a bract; 2, median longitudinal section of a flower.

F.P.S.A., 1939.

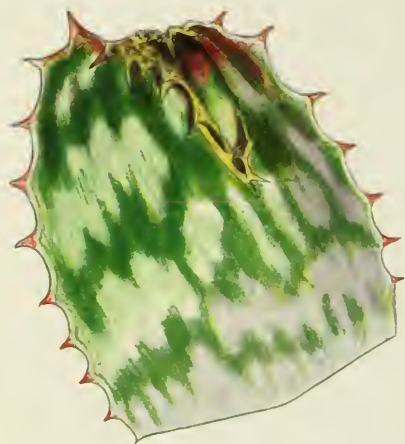


PLATE 732.

ALOE DAVYANA var. SUBOLIFERA.

Transvaal.

LILIACEAE. Tribe ALOINEAE.

ALOE Linn.; Benth. et Hook. f. Gen. Plant. vol. iii. p. 776.

Aloe Davyana Schönl. var. **subolifera** Groenewald var. nov. in sectione *Saponariae* Berger ad *A. Davyanam* valde accedit sed subolibus numerosis et inflorescentiae ramorum habitu differt.

TRANSVAAL: Pretoria distr., near Pienaar's River, Aug. 1936, *van der Merwe* in Nat. Herb. 22816.

This *Aloe* was first recognised by Dr. I. B. Pole Evans, C.M.G., as distinct from *Aloe Davyana*, and he suggested at the time the specific epithet *subolifera*. It very definitely merges into *A. Davyana* (see Plate 358) to the south at the Wonderboom near Pretoria and to the east at Olifant's River, while to the north near Nylstroom are extensive fields of plants which sometimes resemble *A. Davyana* and sometimes typical *A. Davyana* var. *subolifera*, and sometimes in addition have a marked *A. Greatheadii* (see Plate 369) appearance (larger plants, many more racemes which are much less elongated and often four or more plants have their stems joined at the base).

The variety here described grows in various parts of the Pretoria and Rustenburg districts, the most typical habitat being among the shrubs (*Acacia* spp., *Combretum* spp.) which cover the areas of red sand in the vicinity of Pienaar's River. It is also found on the surrounding black turf. The plants form dense colonies, each consisting of up to one hundred individuals, and each colony extends itself by forming short underground suckers, which later form an independent root-system. When the plants are in flower, all the flowers of one colony are of one shade of colour; adjacent colonies differ in the shade of colour of the flowers. The flowers range in colour from pale pinkish-white, through salmon to

a light vermilion : the paler colours show yellowish stripings between the perianth-segments. This appears to show that a new colony may originate as a single plant from a seed. Another species of *Aloe* (*A. ammophila* Reynolds) has a similar habit, but flowers earlier in the year. Interspersed among clumps of *A. Davyana* var. *subolifera* are clumps of *A. transvaalensis* (Plate 636) which flower in summer and are further distinguished by the presence of more distinct cross-markings on the underside of the leaves.

We are indebted to Dr. F. van der Merwe for the interesting notes on the variety we have described and also for the specimens from which our plate was prepared.

DESCRIPTION :—Plants acaulescent, suckering, forming colonies. *Leaves* many in a dense rosette, 6 cm. long, 5 cm. broad, 1.2 cm. thick, more or less oblong, slightly convex on both surfaces, pale green beneath, somewhat maculate above, dying off at the apex so that the green fleshy portion becomes more or less truncate and tipped with the dry spiny projection up to 7 cm. long; teeth about 4 mm. long and 8 mm. apart; older leaves slightly larger than as stated above and younger leaves smaller. *Inflorescences* two from each rosette of leaves, about 60 cm. high, with 2–3 branches on the upper half; unbranched portion of peduncle 9 mm. diameter, subterete; branches slightly curved. *Empty bracts* 1.5 cm. long, long-acuminate from an ovate base. *Raceme* 12–18 cm. long. *Pedicels* 1–2 cm. long, erect in bud, recurved in open flowers, again erect in fruit. *Perianth* 2.7 cm. long, globose and 6 mm. diameter at the base, then slightly narrowing, and gradually widening to 9 mm. diameter at the mouth; segments joined just above the middle; outer segments 4 mm. broad, with a broad reddish keel and whitish margins; inner-segments 5.5 mm. broad, with a broad salmon-coloured keel and yellowish margins. *Filaments* yellowish, slightly exerted; 3 somewhat dilated at the base; anthers dark. *Ovary* green, 6 mm. long, oblong in outline; style yellowish. *Capsule* (almost mature) 2.1 cm. long, 1.1 cm. diameter, obscurely 3-angled.

PLATE 732.—Fig. 1, showing general habit; 2, a bract; 3, median longitudinal section of the perianth.

F.P.S.A., 1939.



PLATE 733.

ALOE SUPRAFOLIATA.

Swaziland, Zululand, Natal.

LILIACEAE. Tribe ALOINEAE.

ALOE Linn.; Benth. et Hook. f. Gen. Plant. vol. iii. p. 776.

Aloe suprafoliata Pole Evans in Trans. Roy. Soc. S. Afr. vol. 5. p. 603.

Dr. I. B. Pole Evans, C.M.G., when he described this species, considered it to be unique in the genus and proposed a new section *Superpositae* for it. From specimens collected in Swaziland and also from specimens grown at the Division of Plant Industry, Pretoria, Dr. Pole Evans concluded that the leaves are always distichous, and he described them as such. In an account of a botanical trip through Swaziland in 1937 (Cactus and Succulent Society of America vol. 8, p. 199), Dr. R. A. Dyer, a member of the staff of the National Herbarium, found the species growing in profusion, and records that the specimens on reaching maturity have the characteristic arrangement of the leaves common to most species of *Aloe*, but that if a mature plant grows under adverse conditions, it may revert to its juvenile appearance, *i.e.* with distichous leaves.

Since the discovery of the species in Swaziland in the year 1914, Mr. G. W. Reynolds, who collected the specimen we figure, has recorded it from Zululand and Natal. On the Goben Mountain, 24 miles east of Vryheid, according to Mr. Reynolds, specimens of the species occur in countless thousands and they are more numerous there than in any other locality known to him.

DESCRIPTION:—*Leaves* dull greyish-green, distichous or spiral, 32 cm. long, 7–9 cm. broad at the base, 7 mm. thick, tapering from the base upwards, convex on the back, slightly concave on the face, with a thin cartilaginous margin on one side, armed with slightly upcurved prickles 4–6 mm. long and

1-1.2 mm. apart; prickles dark coloured above. *Peduncle* 36 cm. long, terete, 1 cm. diameter. *Bracts* 1.8-3 cm. long, 1.8 cm. broad, oblong-ovate, subacuminate, many veined. *Raceme* 3-4 cm. long, cylindric, tapering upwards, with the lowermost flowers withered and erect, the open flowers reflexed, and the unopened flowers erect. *Bracts* 2 cm. long, 1 cm. broad, elliptic, deeply concave and clasping the pedicel, with a central herbaceous portion and broad membranous margins. *Pedicel* 2 cm. long, 2 mm. diameter. *Perianth* coral-red, with green tips, 4 cm. long, 7 mm. diameter, cylindric, very slightly narrowing above and below; outer segments 6.5 mm. broad; inner segments 8 mm. broad, with a central red keel and broad whitish margins. *Stamens* almost as long as the perianth; filaments light yellow; anthers dark orange. *Ovary* dark green, 7 mm. long, 2.5 mm. diameter, cylindric; style light yellow, slightly shorter than the filaments; stigma minute, capitate. (National Herbarium, Pretoria, No. 24480.)

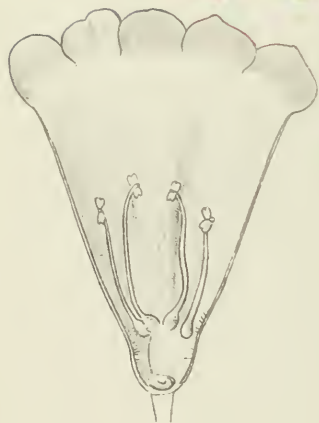
PLATE 733.—Fig. 1, a bract; 2, median longitudinal section of a flower.
F.P.S.A., 1939.



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7

PTERODISCUS AURANTIACUS.

Transvaal.

PEDALIACEAE. Tribe PEDALIEAE.

PTERODISCUS Hook.; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1057.

Pterodiscus aurantiacus Welw. in *Trans. Linn. Soc.* vol. 27. p. 53;
Fl. Trop. Afr. vol. 4, sect. 2, p. 543.

We are indebted to Mr. J. E. Repton for the specimen of *Pterodiscus aurantiacus*, which he collected during October 1936, near Malips Drift, Pietersburg district, Transvaal. The specimen was planted at the Division of Plant Industry, Pretoria, and flowered the following year, when our illustration was prepared. The genus *Pterodiscus* is represented by about 14 species, all African; the discovery of *P. aurantiacus* in the Transvaal adds a third species to those previously known from South Africa. *P. aurantiacus* also occurs in Angola, South-West Africa, and Amboland. When in the fresh state the plant has a granulated surface; each granule is sub-globose and made up of four portions. We figured a species (*P. speciosus*) on Plate 213 which differs from *P. aurantiacus* in having purple flowers and fruits that are emarginate at the apex.

DESCRIPTION :—*Stem* somewhat fleshy. *Branches* greyish, covered with small glands. *Leaves* opposite, petioled; petiole about 1 cm. long, deeply channelled above, convex beneath, covered with small glands; blades 3–7 cm. long, 1.1–2.4 cm. broad, lanceolate, obtuse, with slightly undulating margins, paler and thickly covered with small glands beneath. *Flowers* solitary in the axils of the leaves. *Pedicels* about 5 mm. long, granulate, with a small dark-purple gland on either side. *Calyx* 5 mm. long, granulate; lobes ovate, sub-acuminate. *Corolla-tube* reddish brown, 4.5 cm. long, 3 mm. diameter at the base, 1.1 cm. diameter above, gradually

widening upwards, deeply concave on the lower side, with a distinct keel on the upper side, densely glandular without, glabrous within except at the insertion of the stamens, where it is glandular-hairy. *Fertile stamens* 4; filaments 1 cm. long, somewhat curved, kneed at the base, with long glandular hairs on the knee; anther thecae separated, about 1.5 mm. long, somewhat triangular in outline, with a small ovate orange-coloured gland between them; staminode 2 mm. long, curved. *Ovary* on a thick solid receptacle, 2 mm. long, 1.5 mm. diameter, sub-globose, granulate, 2-chambered, with a single ovule in each chamber; style 2 cm. long, terete, glabrous; stigma 2-lobed, with the lobes 1.5 mm. long, flat and with a sparsely fimbriated membranous margin. *Fruit* (immature) 4-winged, 3 cm. long, 3 cm. broad (from wing to wing), granulated. (National Herbarium, Pretoria, No. 24479.)

PLATE 734.—Fig. 1, corolla laid open; 2, a single stamen; 3, gynoeceium; 4, fruits.
F.P.S.A., 1939.



ZANTEDESCHIA ALBOMACULATA.

Cape Province, Transvaal.

ARACEAE. Tribe PHILODENDREAE.

ZANTEDESCHIA Spreng; (*Richardia* Kunth; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 982).

Zantedeschia albomaculata Baill. in *Bull. Soc. Linn. Paris*, vol. i, p. 254;
Fl. Cap. vol. 7, p. 37.

In previous volumes (Plates 10, 15, 141) we illustrated three species under the name *Richardia* Kunth. Under the International Rules of Nomenclature, the genus *Zantedeschia* Spreng. must be retained, so that the names of those species previously figured should be *Zantedeschia angustiloba* Engl. (= *R. angustiloba* Schott); *Z. Rehmanni* Engl. (= *R. Rehmanni* N. E. Br.); *Z. melanoleuca* Engl. (= *R. melanoleuca* Hook. f.).

The species here figured differs from *Z. Rehmanni* in the leaves being hastate at the base, from *Z. angustiloba* in having a white spathe; and from *Z. melanoleuca* in the relatively long leaf-blade as compared with the breadth. The leaves of *Z. albomaculata* are described as spotted, and Hooker in his description published in the *Botanical Magazine* (tab. 5140) over seventy-five years ago called it the "spotted-leaved *Richardia*." The spotting, or rather the translucent patches on the leaves, does not appear to be a permanent feature of the species.

All the South African species are favourites in horticulture. Some, especially *Z. angustiloba*, have a large sale as cut flowers in Pretoria and Johannesburg during the months of October to December.

Z. albomaculata is fairly common on the higher altitudes of the north-eastern Cape Province—e.g., Aliwal North, Tembuland, Griqualand East. The specimen from which

our illustration was prepared was collected by Miss I. C. Verdoorn at Waterkloof, near Pretoria, and was cultivated at the Division of Plant Industry where it flowered in November 1934.

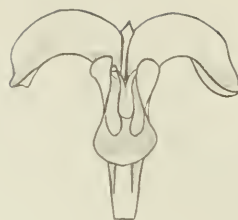
DESCRIPTION:—*Leaves* petioled; petioles up to 37 cm. long, 1·2 cm. broad, broadly channelled on the inner face, strongly convex on the back, sheathing at the base; blade 27–33 cm. long, 12·5–14·5 cm. broad near the base, sagittate at the base, distinctly apiculate at the apex. *Peduncle* of spathe 28–56 cm. long, terete or semi-terete. *Spathe* creamy white, greenish at the base, dark purple at the base within, 12–14 cm. long, 6·5–8 cm. broad across the mouth, distinctly apiculate at the apex. *Spadix* up to 6·5 cm. long, with the upper half bearing male and the lower half female flowers. *Anthers* sessile; pollen grains adhering to one another to form a string-like body. *Ovaries* sessile, more or less quadrate seen from above; stigma sessile, capitate. (National Herbarium, Pretoria, No. 16949.)

PLATE 735.—Fig. 1, cross-section of petiole above; 2, cross-section of petiole at base; 3, spadix; 4, stamens with strings of pollen grains; 5, ovary showing sessile stigma.

F.P.S.A., 1939.



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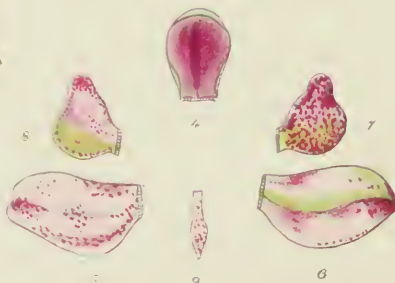


PLATE 736.

DISA BEGLEI.

Cape Province.

ORCHIDACEAE. Tribe OPHRYDEAE.

Disa Bergius, *Descr. Plant. Cap.* (1767), p. 348; *Benth. et Hook. f., Gen. Plant.* vol. iii. p. 630.

Disa Begleyi L. Bolus in *Annals Bolus Herb.* vol. i. p. 195.

Since the discovery of this species by H. V. Begley in January 1915, on a plateau of the Hottentotsholland Mountains, south of Sneeuwkop, at an altitude of 4000 to 4500 feet, only one other collection is known to us—namely, that of Travers Jackson made in December 1915 on “the Stellenbosch Mountains.” The plant, though small of stature, has a fairly large and dense cluster of moderately sized, richly coloured, pink flowers, which places it among the showy orchids of the mountains in the Western Province; and it is remarkable that so attractive an orchid should have escaped the more frequent observation of mountaineers and collectors.

If the classification of the *Flora Capensis* were followed, this species would be placed with its affinity, *D. bivalvata* (L.) Durand et Schinz, in the genus *Orthopenthia* Rolfe. Its retention in *Disa* is in accordance with the views of Swartz, Bolus, Schlechter, and Kränzlin.

The Plate represents one of the type-specimens collected by Mr. Begley.

DESCRIPTION:—*Plant* 7–12 cm. high. *Stem* leafy throughout its length. *Leaves* erect or ascending, the basal portion sheathing and covering the internodes, 2–4 cm. long, the blades lanceolate, gradually narrowed upwards, the uppermost lanceolate-ovate, acute, up to 2.5 cm. long, 5 mm. broad. *Raceme* dense, subcorymbose, 2–5 cm. in diameter, up to 12-fl., flowers ascending. *Bracts* herbaceous, oblong-ovate

or ovate, acute, shorter than the ovary, 0.5-1.4 cm. long. *Pedicels* up to 6 mm. long. *Odd sepal* reflexed cucullate; not compressed, rounded at the apex, spurless, 0.7-0.8 cm. long; lateral sepals widely spreading, recurved at the apex or sometimes from a little above the base, 0.7-1 cm. long. *Petals* resupinate, inflexed at the apex, suborbicular in outline, very shortly clawed, the lamina rounded anticously, 5 mm. long. *Lip* porrect linear, slightly widened above the middle, acute, 5 mm. long, up to 1.5 mm. broad. *Rostellum* suberect, nearly 2 mm. high, the arms diverging, the intermediate lobe resupinate; anther reflexed. (*H. V. Begley*, Bolus Herbarium, No. 13896.)—L. BOLUS.

PLATE 736.—Fig. 1, fl., front view; 2, do., back view; 3, do., side view; 4, odd sepal; 5, 6, side sepal, front and back view; 7, 8, petal, front and back view; 9, lip— $\times 2$; 10, column and lip, side view; 11, column, front view; 12, pollinium—enlarged.

F.P.S.A., 1939.



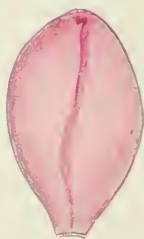
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PLATE 737.

DISA PILLANSII.

Cape Province.

ORCHIDACEAE. Tribe OPHRYDEAE.

DISA Bergius, *Descr. Plant. Cap.* (1767), p. 348; *Benth. et Hook. f., Gen. Plant.* vol. iii. p. 630.

Disa Pillansii L. Bolus in *Annals Bolus Herb.* vol. ii. p. 32.

The plant represented is one of the type-specimens collected by N. S. Pillans in October 1915 on the Hottentotsholland Mountains at Steenbras, near Sir Lowry's Pass. In November 1923 and again in December 1926 it was found by T. P. Stokoe in the same area, the latter collection being from the Kogelberg.

The species is remarkable for the shape of the odd sepal, in that the margins of the hood turn to meet each other, forming a vault, and thus partly close the opening in front, leaving the latter unusually narrow. Generally in the genus *Disa*, the opening is rounded or obovate. An additional character in the odd sepal which distinguishes our species from its allies is the absence of a spur, the latter being replaced by a hump or broad sac.

DESCRIPTION:—*Plant* up to 19 cm. high. *Leaves* 3–4, basal, erect-spreading, oblong-spathulate or linear, somewhat leathery, up to 4 cm. long, 1 cm. broad. *Scape* 2 mm. diam.; sheaths 3, acuminate, shorter than the internodes, 2.5–3 cm. long. *Raceme* 2–6 fl., flowers ascending. *Bracts* about as long as the ovary, 1–1.5 cm. long. *Pedicels* about 3 mm. long. *Odd sepal* erect anticous, deeply hooded or vaulted, the mouth linear or oblong, humped at the back near the middle, 0.8–1 cm. long; lateral sepals ascending or spreading, oblong-oval or oblong-obovate, concave keeled, 1–1.4 cm. long. *Petals* erect, incurved at the apex, oblong or linear-oblong in outline, slightly narrowed downwards, broadest

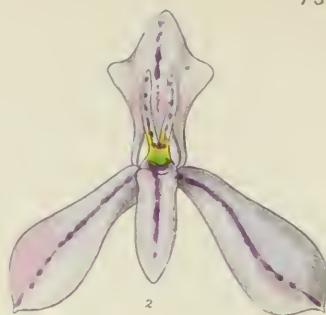
near the middle, obtuse, 5-6 mm. long. *Lip* porrect-ascending, narrow-linear, obtuse, 5-6 mm. long, scarcely 1 mm. broad. *Rostellum* ascending, oblong, 2 mm. long, the middle lobe reflexed; anther ascending; gland small. Bolus Herbarium (*Pillans* 2675.)—L. BOLUS.

PLATE 737.—Fig. 1, fl., front view, nat. size; 2, odd sepal, front view; 3, do., side view; 4, side sepal; 5, petal; 6, lip— $\times 2$; 7, column with petals and lip; 8, column, front view; 9, do., side view; 10, pollinium—variously enlarged.

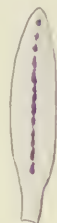
F.P.S.A., 1939.



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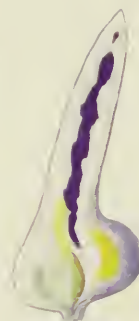
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PLATE 738.

DISA TRILOBA.

Cape Province.

ORCHIDACEAE. Tribe VANDEAE.

DISA Bergius, *Descr. Pl. Cap.* p. 348; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 630.

Disa triloba Lindl. *Gen. et Sp. Orch.* p. 351; *Bolus in Journ. Linn. Soc.* vol. xxv. p. 200; *Durand et Schinz, Conspect. Fl. Afr.* vol. v. p. 109; *Kränzl., Orch. Gen. et Sp.* vol. i. p. 772; *Rolfe in Dyer Flor. Cap.* vol. v. sect. 3. p. 239. *D. sagittalis* var. *triloba* Schlechter in *Engl. Bot. Jahrb.* vol. xxxi. p. 232.

The type of this species was collected by Drège in the Worcester Division, on "mountains near De Liefde" between 1826 and 1834. Since then the only collections recorded are two made by Dr. C. L. Leipoldt—namely, in the Valley of the River Zondereinde in October 1919, and in the Worcester Division, between Bain's Kloof and Worcester, early in November 1928. The drawing represents a plant from the latter station, which is probably not far from the type-locality.

The species was published in 1838, and has been upheld by all the authorities since that time except Schlechter, who reduced it to a variety of *D. sagittalis* Sw. The two species are closely allied; but the difference in the shape of the odd sepal affords a good distinguishing character. It is three-lobed in the upper part, and the lobes are somewhat triangular, the intermediate one being larger than the lateral ones; whereas in *D. sagittalis* the lateral lobes are rounded and large and the intermediate one obsolete.

DESCRIPTION:—*Plant* 6–15 cm. high. *Leaves* 3–6, rather withered at time of flowering, the blades oblong or linear, acute or abruptly acute, margins undulate, up to 4 cm. long, 7 mm. broad. *Scape* entirely clothed with 4–7 imbricate acute veined membranous sheaths. *Raceme* 6–11 fl., some-

times compact, 2.5–3.5 cm. long; flowers ascending. *Pedicels* 4–5 mm. long. *Bracts* enwrapping the ovary, equalling or exceeding it in length, oval-oblong, acute or subobtuse, membranous, conspicuously veined, up to 1.5 cm. long, and 8 mm. broad. *Odd sepal* almost erect, oblong-obovate in outline, slightly cucullate in lower half, upper half flattened and dilated to 7 mm. broad, 3-lobed, the lobes almost rounded or somewhat triangular, the lateral smaller than the terminal lobe, 1.6 cm. long with the slender tapering spur 5 mm. long. *Side sepals* spreading-decurved or somewhat porrect and finally decurved, oblong, slightly widened towards the apex, obtuse, 1.1 cm. long, up to 5 mm. broad. *Petals* almost erect, widened anticously at the base, obtuse, 8 mm. long, up to 2.5 mm. broad at the base. *Lip* linear, shortly clawed, obtuse, 9 mm. long, up to 2.5 mm. broad. *Column* about 1.5 mm. long. *Tubercle* in the form of a somewhat rounded lamella. *Anther* resupinate; glands of the pollinia nearly circular. *Stigma* semicircular. (*Leipoldt* in Bolus Herbarium, No. 16305, 18851.)—L. BOLUS.

PLATE 738.—Fig. 1, bract $\times 3$; 2, fl., front view; 3, do., side view— $\times 2$; 4, side sepal $\times 4$; 5, petal $\times 6$; 6, lip $\times 3$; 7, column, front view, enlarged; 8, do., side view— $\times 10$.

F.P.S.A., 1939.



LISSOCHILUS PARVIFLORUS.

Cape Province.

ORCHIDACEAE. Tribe VANDEAE.

LISSOCHILUS *R. Br. in Lindl. Bot. Reg. t. 573 (1821); Benth. et Hook. f. Gen. Plant. vol. iii. p. 536.*

Lissochilus parviflorus *Lindl. Gen. et Sp. Orch. p. 191; Lindl. Bot. Reg. vol. xxiv. Misc. 14; Maund, Botanist, vol. iv. t. 172; Rolfe in Gard. Chron. vol. xiii. p. 684, et in Dyer Flor. Cap. vol. v. sect. 3, p. 57.*

The geographical range of this species appears to be very limited, the only recorded localities being Algoa Bay and its immediate neighbourhood. It was described in 1833, the type being Dr. Gill's collection from Stony Vale. The only other collection cited in the *Flora Capensis* is that of Loddiges at Algoa Bay. Since the publication of this work living plants have been received from Florence Paterson in 1915 and F. H. Holland in 1931, collected at Humewood, near Port Elizabeth, and from R. Marloth in 1925, the locality being given as "sandy dunes near Port Elizabeth." In 1919 plants from the same station were exhibited at the Cape Town Wild Flower Show. Drawings were also made of these, as they differed somewhat in the colour of the flower from Mrs. Paterson's plant, whose inflorescence is represented here. The flowering-period is October and November.

The genus *Lissochilus* is entirely African with about 100 species of which 13 are found in South Africa. The only other species previously figured here are the handsome *L. Sandersonii*, which forms the subject of Plate 493, and *L. Buchananii* figured on Plate 586.

DESCRIPTION :—*Plant* 25–30 cm. high. *Pseudobulbs* subglobose, 3·2–4 cm. long. *Produced leaves* 4–7, linear acuminate, up to 27 cm. long, usually up to 1·5 cm. broad. *Scape* 5 mm. diam.; sheaths up to 5, shorter or longer than the internodes, acuminate, 3–5·5 cm. long. *Raceme* 6–11 cm. long, about

15-fl., flowers ascending. *Bracts* oblong-ovate, acute or acuminate, 2-0.8 cm. long. *Pedicels* about 1 cm. long. *Sepals* oblong or obovate-oblong, obtuse, the odd one erect, the lateral spreading, 1.5 cm. long, up to 8 mm. broad. *Petals* almost erect, suborbicular or obovate-orbicular, up to 1.4 cm. long, up to 1.2 cm. broad. *Lip* inferior in the open flower, up to 1.7 cm. long with the conical spur 2-3 mm. long, lobed below the middle, the side lobes erect suborbicular, 4-5 mm. long, the middle lobe obovate-orbicular, up to 1 cm. long, with 5 verrucose keels reaching to beyond the middle. *Column* oblong, slightly constricted near the middle, 8 mm. long; anther suborbicular, conspicuously rostrate, up to 5 mm. long; pollinia oval; stipe subquadrate. (F. Paterson, F. H. Holland 3723, Bolus Herbarium 16334.)—L. BOLUS.

PLATE 739.—Fig. 1, leaf; 2, portion of scape; 3, inflorescence—nat. size; 4, fl., front view— $\times 2$; 5, do., from another plant; 6, 7, 8, sepals of do.; 9, 10, petal of do., front and back view—nat. size; 11, lip, column, and ovary, side view; 12, lip, front view; 13, do., side view; 14, do., flattened— $\times 2$; 15, column, front view; 16, do., side view; 17, pollinia and gland—enlarged.

F.P.S.A., 1939.



BROWNLEEAE MONOPHYLLA.

Cape Province.

ORCHIDACEAE. Tribe OPHRYDEAE.

BROWNLEEAE Harvey *ex Lindley in Hook. Lond. Journ. Bot.* vol. i. p. 16 (1842); *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 631.

Brownleea monophylla Schlechter in *Engl. Bot. Jahrb.* vol. xx. *Beibl.* 50, p. 18; *Engl. Bot. Jahrb.* vol. xxxi. p. 307; *Rolfe in Dyer Flor. Cap.* vol. v. sect. 3, p. 265.

With the recently described species, the genus *Brownleea* now embraces a total of sixteen, of which two occur in Tropical Africa and one in Madagascar. The remainder are South African, and are to be found chiefly on mountains at an altitude exceeding 2000 feet. Only four of the South African species have been collected frequently and are well known. The rest (*B. Nelsoni*, *B. natalensis*, *B. Woodii*, *B. Pentheriana*, *B. macroceras*, *B. leucantha*, *B. flavescens*, *B. transvaalensis*, and *B. monophylla*) have apparently all been described from dried material, and are known only from the type-collection, until *B. monophylla* was found in February 1914 by A. G. McLoughlin in East Griqualand at Fikelemutu Pass in the Drakensbergen, near Matatiele, at an altitude of 7500–8000 feet. Later in February 1920 Mr. McLoughlin got it again between Kokstad and Mount Currie, and this specimen is represented here.

B. monophylla is perhaps the largest-flowered species in the genus, and differs chiefly from its very close ally, *B. macroceras*, in having 1–2, instead of 3–4 cauline leaves. Probably, when ample living material is available for examination, the two species will prove to be identical. The type-locality of the former is near the summit of Mopedis Peak, Witzi's Hoek, in the Orange Free State, and of the latter the Kat River Mountains in the Stockenström Division, Cape Province.

DESCRIPTION :—*Plant* 22 cm. high. *Tubers* oval, crowned with remains of basal sheaths. *Stem* slender, scarcely up to 2 mm. diam.; sheaths 2, basal. *Leaves* 1-2, ascending or nearly erect, linear-lanceolate, acuminate, the lower up to 8.5 cm., the upper 4.3 cm., long. *Flowers* 1-2. *Bracts* herbaceous, 2.5 cm. long (or in a 2-fld. raceme of the type the lower bract up to 4 cm. long). *Pedicel* about 8 mm. long. *Odd sepal* galeate-funnel-shaped, acuminate, 4-7 cm. long with the spur 3.3 cm., or in the type 3.5 cm., long; side sepals linear, slightly oblique, acuminate, 1.5 cm. long, up to 3.5 mm. broad. *Petals* oval-oblong, acuminate, slightly oblique, 1.3 cm. long, up to 4 mm. broad. *Lamina of the lip* very narrow, appressed to the stigma, about 1 mm. long. *Column* 5 mm. long; rostellum divided to the middle, the arms diverging; anther horizontal; staminodes in the form of a tubercle; stigma orbicular. (A. G. McLoughlin in Bolus Herbarium, No. 16403.)—L. BOLUS.

PLATE 740.—Fig. 1, odd sepal; 2, side sepal; 3, petal; 4, lip— $\times 2$; 5, column and lip, front view; 6, do., side view— $\times 7$.
F.P.S.A., 1939.



PLATE 741.

WATSONIA LONGIFOLIA.

Cape Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA Mill. ; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia longifolia *Mathews et L. Bolus in Ann. Bolus Herb.*
vol. iv. p. 115.

This species is very closely related to *Watsonia Pillansii* (Plate 745), from which it differs in having narrower and more acute bracts, which enclose the perianth-tube only, and do not clasp the rachis as in *W. Pillansii*, the bract, bracteoles, and flower diverging from the rachis. It is found in nearly white, pale rose-pink, old rose, salmon-pink, coral, and terra-cotta, and occurs along the coastal belt from Knysna, through Humansdorp, where it is very common, to Grahamstown.

The plant figured here comes from the Knysna Division, and flowered in the National Botanic Gardens, Kirstenbosch, in November, for many years. The most beautiful colour form of this species is one with pale pink flowers and apple-green leaves and stem. There are minute staminodes at the base of the cylindrical part of the perianth-tube, but these are occasionally missing. They have not been shown in the flower in the accompanying Plate.

DESCRIPTION :—*Plant* 1.4 m. high or more. *Corm* depressed-globose, tunics usually not thick. *Leaves* 4, basal, lowest very long, up to 1 m., fourth 56 cm. long, 0.8–1.3 cm. broad, mid-vein prominent, margins and other veins inconspicuous, bright green, shiny; 8 cauline, sometimes 6 (2 uppermost subtending branches, and therefore called spathes), lowest 34 cm. long, real blade 4 cm. long, sheath firmly adpressed, uppermost 4.5 cm. long, firmly adpressed, internodes altogether hidden. *Inflorescence* often simple, rarely with 2 short branches, up to 62 cm. long, up to 37-flowered, fairly

dense, distichous. *Bract* scarcely clasping stem, oblong or linear-oblong, acuminate or upper ones obtuse, herbaceous, apex membranous, 4.5–2 cm. long. *Bracteoles* 2.7–2 cm. long, completely fused. *Perianth* up to 8.7 cm. long, tube curved, up to 6 cm. long, filiform part as long as cylindrical, outer segments oblong, subacute, 1.1 cm. broad, inner obovate-oblong, up to 1.5 cm. broad, uppermost sometimes a little broader. *Stamens* arcuate, reaching more than half-way up segments, anthers pale or dark purple, up to 1.2 cm. long; 3 minute staminodes between filaments. *Stigmas* reaching anther tips or a little beyond, up to 7 mm. long. *Ovary* slightly constricted in lower half, 3–5 mm. long. *Capsule* becoming truncate at apex, rather narrow below, up to 2 cm. long, 8 mm. diam. *Seeds* 9 mm. long. (J. D. Keet, Bolus Herbarium, No. 17,852.)—G. J. LEWIS.

PLATE 741.—Fig. 1, plant, much reduced; 2, corm and basal leaves, reduced; 3, top of leaf; 4, flower laid open; 5, stigma; 6, capsules; 7, seed. F.P.S.A., 1939.



WATSONIA WORDSWORTHIANA.

Cape Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA *Mill.*; *Benth et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia Wordsworthiana *Mathews et L. Bolus in Ann. Bolus Herb.*
vol. iv. p. 26.

This species belongs to the fairly large group consisting of *Watsonia Meriana* and its allies, but is distinct in having a rather wide-mouthed perianth-tube and broad segments. The original corms were found on the Roman's River farm in the Tulbagh Division. These were distributed to a few enthusiastic gardeners, and some were sent to Kirstenbosch by Mr. H. K. Tredgold, and from these plants the accompanying drawing was made about twenty years ago.

The pure white *Watsonia* known as "Arderne's *Watsonia*" or *Watsonia Ardernei* (Plate 750), which is frequently seen in gardens in the south-western district, comes from exactly the same locality as *W. Wordsworthiana*, and it is thought that it may be a "sport" of *W. Wordsworthiana*. Apart from the colouring, there are, however, numerous differences, such as the very broad, nearly oval segments, the funnel-shaped, wide-mouthed perianth-tube, and the stamens, which are usually equilateral instead of arcuate. It is an interesting problem, and could only be solved by cultivating a number of seeds of *W. Ardernei*, to see whether any of them would revert to *W. Wordsworthiana*. *Watsonias* multiply very rapidly by means of their corms, and are therefore very seldom grown from seed.

The plant figured as *W. Wordsworthiana* in the Botanical Magazine (t. 9261) is not this species, but *W. Cooperi*, which, as the writer states, is near *W. pyramidata* (*W. rosea*).

DESCRIPTION :—*Plant* up to 1.65 m. high. *Leaves* 4 basal,

all same length or lower slightly longer, up to 60 cm. long, up to 4 cm., most often 2.5–3.5 cm. broad, not shiny, slightly glaucous, mid-vein and margins a little raised; 5 cauline, lower half sheathing, lowest 57.5 cm. long, sheath 22.5 cm. long, uppermost altogether sheathing. *Inflorescence* much branched, branches erect, lowest about 60 cm. long, uppermost 15 cm. long, main axis 14–16-flowered, flowers ascending, only rarely patent when fully open, lilac-purple. *Bract* herbaceous, upper quarter membranous, 3.2–1.8 cm. long. *Bracteoles* a little longer, free at apex or completely fused. *Perianth* tube 5 cm. long, lower part up to 3.5 mm. diam., cylindrical part equally long, 1.3 cm. diam. at throat, segments obovate-oblong, obtuse, especially inner ones, 3.2 cm. long, 1.9 cm. broad, inner ones a little wider. *Stamens* unilateral, porrect or subarcuate, about 4 cm. long with anthers 1.2 cm. long, richly purple coloured, filaments white or pale mauve, pollen pale. *Style* 6.5 cm. long, branches about 7 mm. long, bifid at middle, short branches again divided, the 12 stigmas about 2 mm. long. *Capsule* cylindrical, slightly narrowed towards base, up to 3.5 cm. long. (National Botanic Gardens, No. 652/13, in Bolus Herbarium, No. 15,203.)—G. J. LEWIS.

PLATE 742.—Fig. 1, flower laid open; 2, style-branch and stigmas; 3, capsules; 4, seed.
F.P.S.A., 1939.



WATSONIA WILMANIAE.

Cape Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA Mill. ; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia Wilmaniae *Mathews et L. Bolus in Ann. Bolus Herb.*
vol. iv. p. 114.

Miss M. Wilman, Director of the McGregor Museum, Kimberley, sent corms of this rather attractive species to the National Botanic Gardens, Kirstenbosch, but was unable to give the locality from which they came. Since then plants which match this very well have been found in the Knysna Division, and it belongs to the group of *Watsonias* found growing near the streams in that forest district. This group flowers during the summer months, and has short bracts which do not clasp the rachis, smallish and numerous flowers to the spike. One member of this group, *W. Galpinii*, has already been figured (Vol. II, plate 45). From this the present species differs very markedly, in having a longer perianth-tube which has a distinct, more or less right-angled bend in it.

DESCRIPTION :—*Plant* up to 1.4 m. high. *Corm* depressed globose. *Leaves* 6 basal, slightly glaucous, up to 50 cm. long, up to 4 cm. broad, lower 2–2.5 cm. broad, mid-rib green and prominent beneath, margins scarcely prominent, pale yellow ; 4 cauline, longer than internodes, lowest 45 cm. long, sheath firmly adpressed, 21 cm. long, upper 11 cm. long. *Spathes* 4, firmly sheathing, 8–2 cm. long. *Inflorescence* 4-branched, branches very erect, main stem 40-flowered, about 50 cm. long, branches up to 16-flowered, 21 cm. long, flowers distichous and fairly laxly arranged, diverging from stem. *Bract* rigid, erect, upper part membranous, up to 2 cm., more often 0.7–1 cm. long. *Bracteoles* fused, as long as bracts or lower ones shorter. *Perianth* 5–6 cm. long, tube bent in middle, filiform

part equal to cylindrical or a little shorter, segments 2 cm. long, outer 9 mm., inner 1.1 cm. broad. *Stamens* arcuate, reaching top of segments, anthers purple, 2-3 mm. long. *Capsule* becoming truncate at apex, lower part narrow, up to 1.5 cm. long and 6 mm. diam. *Seeds* 5 mm. long. (Bolus Herbarium, No. 18,578.)—G. J. LEWIS.

PLATE 743.—Fig. 1, plant, much reduced; 2, flower laid open; 3, stigmas. F.P.S.A., 1939.



WATSONIA BEATRICIS

Cape Province.

IRIDACEAE. Tribe Ixieae.WATSONIA *Mill. ; Benth. et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia Beatricis *Mathews et L. Bolus in Ann. Bolus Herb.*
vol. iv. p. 52.

Most of the *Watsonias* are worthy of admiration, and especially this beautiful and striking species, with its long spike and numerous, closely arranged, apricot-red flowers, many of which are open at the same time. Because of this, and also on account of its flowering season—January to March—it should be counted among the best species for the horticulturist.

W. Beatricis comes from the George Division, and was named after Miss Beatrice Hops, who is the first recorded collector of this species. The plant figured flowered at Kirstenbosch from corms collected by Mr. Eustace Pillans. So far there has been no record of it occurring outside the George Division. It belongs to a group of species having firm bracts, short internodes, and many flowers in the spike, which is usually unbranched, and includes *W. Pillansii* (Plate 745) and *W. longifolia* (Plate 741), both figured in this volume. The group, which consists of about eight species, begins in the George Division, and extends along the coastal belt to Natal. This species is distinguished from *W. Pillansii*, to which it is closely allied, by its subglaucous leaves, distinctly prominent mid-vein and margins, several flowers open at same time, and its broader segments, which are patent, soon recurving.

DESCRIPTION:—*Corm* depressed-globose, about 6 cm. diam., tunics of thick fibres. *Stem*, including spike, up to 95 cm. high or occasionally a little higher. *Leaves* 3 basal, subglaucous, mid-vein and margins fairly prominent and

straw-coloured, up to 75 cm. long, 3 cm. broad; 8 cauline, imbricate, completely enclosing stem, lowest up to 74 cm. long, sheathing part 14 cm. long, uppermost 9 cm. long. *Inflorescence* up to 51 cm. long, spike simple or with 1 or 2 branches produced later, usually 30–40-flowered, often 15–17 open at same time. *Bract* as long as internode or upper ones longer, herbaceous, reddish, apex and margins membranous, ovate-oblong, very broad at base, ventricose, scarcely keeled, lower acuminate, upper obtuse, viscous inside, 3·5–1·5 cm. long. *Bracteoles* completely fused, ovate-orbicular, equalling bracts. *Perianth* erect-patent, tube 5 cm. long, filiform part 2 cm. long, throat 6 mm. diam.; segments patent, soon recurving, obtuse, 2·5 cm. long, outer oblong, 1·1 cm. broad, inner ovate-oblong, up to 1·6 cm. broad. *Stamens* arcuate, reaching to within 6 mm. of apex of segment, filament salmon, closed anther 1·4 cm. long, white, open purple-blue. *Style* a little exceeding stamens, primary branches 1 cm. long, secondary 5 mm. long. *Ovary* subobconic, 5 mm. long, 3 mm. diam. at apex. *Capsule* cylindrical, rather narrow towards base, suboblique, 1·1–1·9 cm. long, apex up to 6 mm. diam. *Seeds* often 9 mm. long. (Bolus Herbarium, No. 18,373.)—G. J. LEWIS.

PLATE 744.—Fig. 1, corm and leaves, reduced; 2, flower spike, reduced; 3, flower laid open.
F.P.S.A., 1939.



WATSONIA PILLANSII.

Eastern Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA *Mill. ; Benth. et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia Pillansii *L. Bolus in Ann. Bolus Herb.* vol. iii. p. 75.

This species is closely related to *Watsonia Beatricis* (Plate 744), but although the colouring is very beautiful and very similar, it does not make so fine a display, as there are fewer flowers open at one time, the flowers themselves having narrower and less spreading segments. In addition, it differs in having three small staminodes at the base of the cylindrical part of the perianth-tube, and the flowering period is distinct, *W. Beatricis* flowering during the summer months, and *W. Pillansii* during the autumn and early winter.

The locality given in the Annals of the Bolus Herbarium is not correct, as this species occurs farther east, from Port Elizabeth to the Transkei, the plant figured here having been collected in Kentani by Miss Alice Pegler in 1913, and has flowered in the National Botanic Gardens, Kirstenbosch, every year since then.

DESCRIPTION :—*Plant* up to 2 m., usually 1.25 m. high. *Corm* depressed-globose. *Leaves* 4 or 5 basal, linear, lightly veined, margin scarcely conspicuously thickened, 70 cm. to 1.1 m. long, up to 2.5 cm. broad. *Inflorescence* a simple, dense spike, up to 37 cm. long. *Bract* oblong, obtuse, 1.7–2.7 cm. long, up to 1.2 cm. broad. *Bracteoles* joined to apex, acute, 1.9 cm. long. *Perianth* about 7.3 cm. long, tube 5 cm. long, basal part 2 mm., upper part 1 cm. diam., segments scarcely patent, oval, outer 1.1 cm. broad, inner 1.3 cm. broad. *Staminodes* 3, 1.2 cm. long, apex scarcely free from perianth. *Stamens* 6.5 cm. long, free part of filament 3.9 cm. long, anther 1 cm. long. *Style* 5.3 cm. long, primary branches 1–1.2 cm.

long, secondary 5-6 mm. long. *Capsule* cylindrical, rather narrow towards base, 2.3 cm. long, apex 1 cm. diam. *Seed* subtriangular, oblique, 7 mm. long. (National Botanic Gardens, No. 241/13, in Bolus Herbarium.)—G. J. LEWIS.

PLATE 745.—Fig. 1, plant, much reduced; 2, corm; 3, flower laid open; 4, gynaeceum; 5, ovary; 6, ripe capsules; 7, seed.

F.P.S.A., 1939.



PLATE 746.

WATSONIA KNYSNANA.

Cape Province.

IRIDACEAE. Tribe Ixieae.

WATSONIA *Mill. ; Benth. et Hook. f. Gen. Plant. vol. iii. p. 705.*

Watsonia knysnana *L. Bolus in S.A. Gard. and Country Life, vol. xx. p. 63 (1930).*

The Knysna Division, which has a mild climate and fairly large average rainfall during the year, is clearly one which is very favourable to the genus *Watsonia*. In addition to the species figured here, there are about six other species, or possibly more, occurring in the Knysna and the two neighbouring Divisions, George and Uniondale. This species is related to the group to which *W. longifolia* (Plate 741), *W. Beatricis* (Plate 744) and *W. Pillansii* (Plate 745) belong. It differs from the others, however, in having bracts and bracteoles which distinctly diverge from the flowering axis, and which, like the leaves, are shiny at the base or all over when in bud, as if polished with oil.

The accompanying Plate was prepared by Miss Page from plants which flowered at Kirstenbosch in January 1925, the corms having been sent there the previous year by Mrs. Willis.

DESCRIPTION :—*Leaves* 3 basal, 44, 46 and 40 cm. long, 2 cm. broad, margins pale yellow, scarcely thickened, mid-vein slightly thickened, others numerous, nearly invisible; cauline 6, imbricating or 2 upper internodes exserted 2-2.4 cm., 44-4.5 cm. long, sheaths up to 17 cm. long. *Inflorescence* 2-3-branched, terminal axis 30 cm. long, flowers ascending, 10 or 11 open together. *Bracts* imbricating, convex, obtuse, diverging from stem, lower part herbaceous, upper half membranous, 2.5-1.5 cm. long. *Bracteoles* 1.9-1.5 cm. long, diverging from stem. *Perianth* up to 7 cm. long, tube 8 mm. diam. at apex, 4.5 cm. long, filiform part 2 cm. long, segments

obtuse, outer up to 1.1, inner 1.3 cm. broad. *Stamens* arcuate, reaching a little over half-way up segments. *Stigma* up to 5 mm. long, nearly reaching apex of segments. *Ovary* broadening at top, 5-6 mm. long, 3-4 mm. diam. (National Botanic Gardens, No. 382/24, in Bolus Herbarium.)—G. J. LEWIS.

PLATE 746.—Fig. 1, plant, much reduced; 2, flower laid open; 3, stigma. F.P.S.A., 1939.



WATSONIA VERSFELDII.

Cape Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA *Mill.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia Versfeldii *Mathews et L. Bolus in Ann. Bolus Herb.*
vol. iii. p. 139.

Out of the seventy species of *Watsonia* described, the species figured here can easily be distinguished as the perianth-segments are the longest in the genus, and, in addition, the perianth-tube, for its length, is very slender. It is named after Mr. W. Versfeld, who found some corms growing on his farm on the mountains near Piquetberg, and introduced it into the National Botanic Gardens, Kirstenbosch, in 1916, where it has flowered in October and November every year. It is a graceful garden plant, with its large, laxly spreading flowers and bright, rather transparent colouring.

Pure white *Watsonias* are not common, and the white variety of *W. Versfeldii*, which differs only in its colour, can easily be distinguished from the one or two other white species. In appearance this species most closely resembles *W. pyramidalata (rosea)*, but it differs in having larger flowers with longer segments, the stamens arcuate and in other details.

DESCRIPTION:—*Plant* up to 1.65 m. high. *Corm* depressed-globose, 2.5 cm. long, 5 cm. diam., tunics of soft fibres below, upper fibres thicker and coarser. *Leaves* 7 basal, ensiform, up to 85 cm. long, 5 cm. broad, veins inconspicuous; 2 cauline, ventricose, shortly imbricating, lower up to 41 cm. long, sheath 15 cm. long, upper 13 cm. long, usually without any free part. *Inflorescence* rather laxly many-flowered, 87 cm. long, internodes 1.3–2 cm. long, branching in lower half, branches erect or sub-erect. *Bract* obtuse, upper half membranous, 1.6 cm. long. *Bracteoles* joined almost to apex,

free part 2 mm. long, as long as bract. *Perianth* up to 10 cm. long, tube marked with purple inside, at first erect, then decurving, filiform part 2·6 cm. long, scarcely 2 mm. diam., cylindrical part 3 cm. long, mouth 8 mm. diam., segments obtuse, 4·4 cm. long, outer oblong, 1·2 cm. broad, inner slightly undulate or crisped, 1·5 cm. broad. *Stamens* arcuate, reaching half-way up segments, filament 2·5 cm. long, anther white, soon becoming purple, 1·1 cm. long. *Style* slightly exceeding stamens, branches 5 mm. long, stigma 2·5 mm. long. *Capsule* cylindrical, up to 2·5 cm. long, often 2–2·3 cm. long, 0·8–1 cm. diam. *Seed* 1–1·5 cm. long, the wing 8 mm. long. (National Botanic Gardens, No. 2671/16, in Bolus Herbarium.)—G. J. LEWIS.

PLATE 747. Fig. 1, plant, much reduced; 2, corm, reduced; 3, flower laid open; 4, capsules; 5, seed.
F.P.S.A., 1939.



WATSONIA MARGINATA.

Cape Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA Mill. ; *Gard. Dict.* ed. vii (1759); *Benth. et Hook. f. Gen. Plant.*
vol. iii. p. 705.

Watsonia marginata Ker in *Bot. Mag.* t. 608.

It is not surprising to find *Watsonia marginata* represented among the early figures of South African *Iridaceae* grown in Europe, for it is an exceedingly lovely plant with its handsome foliage, its stately height of up to nearly 7 feet, its slender stem and wealth of mauve or mauve-pink flowers. The terminal portion of the spike, in cultivation, may bear as many as thirty flowers, and when these have spent their beauty, ten or more lateral spikes may be developed down the stem to carry on the long flowering-period of this delectable species. It is one of the deciduous *Watsoniae*, and begins to flower in October, reaching its best in November. The name, *marginata*, refers to the thickened margin of the leaves, which is more conspicuous in the dried state.

The subgenus, *Neuberia*, to which this species belongs, comprises those which have the upper part of the perianth-tube funnel-shaped, contrasting with the cylindrical shape found in *Eu-Watsonia*. The lower part of the tube in both these groups is cylindrical, but very much more slender than the rest of the tube, there being a contraction at the point where the stamens are inserted. This lower portion is usually described as the filiform or thread-like part of the tube.

With its erect stamens equally disposed in the centre of the flower, as well as in the shape of the perianth, *W. marginata* strongly resembles *Ixia*, a genus which it also seems to mimic somewhat in other and lesser respects. It is interesting to note that staminodes, which very rarely occur in *Iridaceae*, are found here as in several species of the *Eu-Watsoniae*.

A native of the south-western districts, this species has been recorded from the Cape district (Kanonberg), the Paarl district (Groot Drakenstein), the Caledon and Malmesbury districts, and from the Calvinia district (near Nieuwoudtville)—the last being perhaps the most northerly station for a *Watsonia* in the south-western area; for the genus appears to be entirely unrepresented in the Karroo and the western districts. The small-flowered variety comes from the Cedarbergen in the Clanwilliam district.

The plant figured was one of many which flowered at Kirstenbosch in October 1923 from corms collected at Groot Drakenstein and sent to the National Botanic Gardens by Mr. L. Baker.

DESCRIPTION :—*Plant* usually 1.50 to 1.80 m. high. *Corm* depressed-globose, the outer tunics cancellate, composed of coarse fibres, up to 7 cm. diam. *Stem* terete, polished, 4 to 7 mm. in diam. *Basal leaves* 3 to 4, ensiform, acuminate, closely veined, the margins thickened, 45 to 80 cm. long, 4 to 5 mm. broad; *cauline leaves* 3, entirely ensheathing the stem. *Inflorescence* many-flowered, elongated, the terminal spike finally 30 cm. long or more, the lateral spikes numerous, 5 to 20 cm. long. *Bracts* herbaceous in the middle, membranous on the sides, the membranes finally split up into fibres, long-acuminate, 2 to 1 cm. long; *bracteoles* shorter, united except for 2 to 3 mm. at the apex. *Perianth* 3.5 to 4.5 cm. long, the filiform portion of the tube up to 1.3 cm. long, the funnel-shaped portion very short; *segments* oval-oblong, obtuse or the outer abruptly acute and up to 1.1 cm., the inner up to 1.3 cm., broad. *Stamens* equilateral, reaching to about three-quarters of the perianth-segment, the filaments erect, connivent round the style, the anthers more or less spreading, up to 1.1 cm. long. *Staminodes* small, white. *Stigmas* reaching to about the middle of the perianth-segments, 2 mm. long. *Ovary* 4 mm. long. *Capsule* globose-obovate, obtusely angled, up to 1.2 cm. long. (National Botanic Gardens, No. 4498/14.)—L. BOLUS.

PLATE 748.—Fig. 1, reduced sketch of plant; 2, corm and lower portion of stem, reduced; 3, upper portion of leaf; 4, portion of terminal spike; 5, flower, cut and flattened—natural size; 6, portion of style and style-branches and 2 stigmas $\times 3$; 7, capsules; 8, seed.

F.P.S.A., 1939.



PLATE 749.

WATSONIA VITTATA.

Cape Province?

IRIDACEAE. Tribe IXIEAE.

WATSONIA Mill.; *Gard. Dict.* ed. vii (1759); *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 705.

Watsonia vittata Mathews et L. Bolus in *Ann. Bolus Herb.* vol. iv. p. 25.

Several plants of this distinct species flowered freely at Kirstenbosch during November and December 1923, when the drawing was made. Details of the origin of the plant were unfortunately unobtainable, and it is hoped the publication of this Plate may lead to the discovery of its geographical distribution.

The uppermost of the three expanded flowers depicted shows the arched stamens and style, with the stigmas still unfolded, of a newly opened flower, and the two lower ones their position and development in older flowers, all of which usually obtains in *Eu-Watsonia*, of which subgenus our species also has the characteristic perianth. The stripe or *vitta* down the middle of the perianth-segments accounts for the specific name, *vittata*.

It is among those of medium height in the genus and its summer flowering-period makes it desirable in gardens for filling the gap between spring and autumn. In both these seasons as well as in summer *Watsonia*, if given full scope, will flourish beyond the power and effectiveness of most other *Iridaceae*.

DESCRIPTION:—*Plant* usually 75–90 cm. high. *Basal leaves* 4 to 5, the mid-rib and margins rather prominent, the other veins very inconspicuous, up to 40 cm. long, 1.2–1.9 cm. broad; *cauline leaves* 2, up to 29 cm. long, the blades 15–6 cm. long. *Inflorescence* branched below, the terminal spike about 18-flowered, the lateral spikes 9- to 6-flowered, the flowers erect-spreading. *Bracts* herbaceous, membranous at the apex

only, ovate-oblong, obtuse, polished, up to 2 cm. long, *bracteoles* united almost to the apex, as long as the bracts or a little shorter. *Perianth* 5-5.5 cm. long, the tube slender up to 3 cm. long, about 5 to 6 mm. in diameter at the throat; *segments* obtuse, the outer oblanceolate-oblong, up to 9 mm. broad, the inner obovate-oblong, 1.2 cm. broad. *Stamens* arcuate, reaching to the middle of the perianth-segment or beyond, the anthers 7 mm. long. *Style* finally reaching the apex of the perianth-segment, the stigmas up to 3 mm. long. *Ovary* 7 mm. long. (Bolus Herbarium, No. 17,696.)—L. BOLUS.

PLATE 749.—Fig. 1, reduced sketch of plant; 2, upper part of leaf; 3, flower cut down the tube and flattened; 4, portion style with branch and stigmas, enlarged.

F.P.S.A., 1939.





WATSONIA ARDERNEI.

Cape Province.

IRIDACEAE. Tribe IXIEAE.

WATSONIA Mill. ; *Gard. Dict.* ed. vii (1759); *Benth. et Hook. f. Gen. Plant.*
vol. iii. p. 705.

Watsonia Ardernei *Mathews et L. Bolus in Ann. Bolus Herb.*
vol. iv. p. 25.

As far as our records go, this most interesting species has never been found since its discovery in about the year 1886 by Mr. H. K. Tredgold on the Roman's River Farm in the Tulbagh district. Growing in vlei ground among numerous plants of the pink *W. Wordsworthiana* (Plate 742), a small clump of "a white variety" arrested attention. Plants were given to Mr. H. M. Arderne, and from his famous garden were generously distributed far and wide, until this species became, in cultivation, the best known of all the *Watsoniae*. In florists' catalogues it was listed as *W. Ardernei* for many years before the species was actually described and published.

In more recent years albino-forms of *Watsonia rosea* and *Watsonia Versfeldii* (Plate 747) have appeared, and the latter at least has persisted in cultivation. It may be that some day a coloured form of *W. Ardernei* may be produced. Meanwhile it remains one of our whitest flowers; for even the anthers are only a pale yellow in the early stages. The funnel-shape of the upper part of the perianth-tube places *W. Ardernei* in the subgenus, *Neuberia*. The stamens are never strictly arched, and very soon after the flower opens are disposed at equal distances apart round the perianth-tube.

It flowers in October and November in South Africa, fruiting in December, and at Kew it was flowering well during September.

DESCRIPTION :—*Plant* usually 1-1.5 m. high. *Basal leaves* 4, up to 60 cm. long, 2.8 cm. broad; *cauline leaves* up

to 7, the blades 22.5 to 10 cm. long, veins inconspicuous except for the prominent mid-rib and margins. *Inflorescence* copiously branched, the terminal spike 21-flowered or more, the lateral branches almost erect, 8 to 60 cm. long. *Bracts* herbaceous, membranous at the apex, up to 1.5 cm. long; *bracteoles* as long as the bracts or a little shorter. *Perianth* 5.5 to 7 cm. long, the tube 3.7 cm. long, the upper part funnel-shaped, a little longer than the lower filiform part, up to 1.7 cm. in diameter at the throat; *segments* oval, exterior 1.5 to 1.9 cm., interior 1.8 to 2.5 cm., broad. *Stamens* equilateral or sometimes somewhat arched but distant from one another, reaching a little beyond the middle of the segment. *Stigmas* reaching to about the middle of the perianth-segment, up to 3 mm. long. *Capsule* cylindrical, flat at the apex, 2 to 3 cm. long, 0.8 to 1 cm. in diameter. (Bolus Herbarium, No. 17,839.)—L. BOLUS.

PLATE 750.—Fig. 1, reduced sketch of plant; 2, upper portion of leaf; 3, flower cut and flattened; 4, capsules; 5, seed—natural size.
F.P.S.A., 1939.

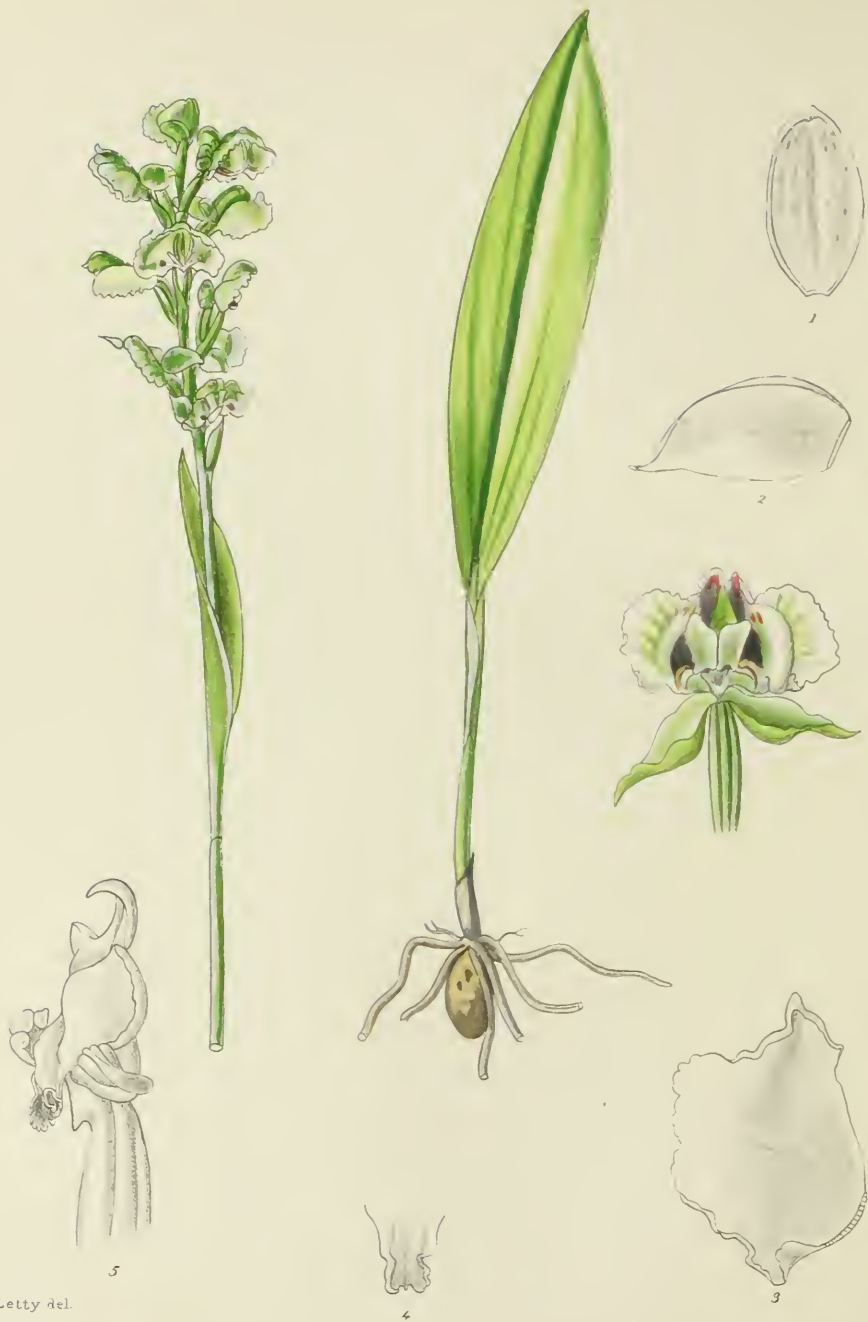


PLATE 751.

PTERYGODIUM HASTATUM.

Cape Province, Orange Free State, Transvaal.

ORCHIDACEAE. Tribe OPHRYDEAE.

PTERYGODIUM Sw. in *Vet. Acad. Handl. Stockh.* vol. xxi. p. 217; *Benth. et Hook. fil. Gen. Plant.* vol. iii. p. 632.

Pterygodium hastatum Bolus in *Journ. Linn. Soc.* vol. xxv. pp. 117 et 208; *Dur. et Schinz Conspect. Fl. Afr.* vol. v. p. 117; *Schlechter in Bull. Herb. Boiss.*, Sér. 1, vol. 6, p. 809; *Kränzl. Orch. Gen. et Sp.* vol. i. p. 857; *Rolfe in Dyer Flor. Cap.* vol. v. sect. 3, p. 276.

The genus, *Pterygodium*, as understood in the "Flora Capensis" contains 12 or 13 species, all, except the one species from Nyasaland, South African, occurring chiefly in the south-western districts and extending eastwards through the coastal regions to the Uitenhage district. The four exceptions are our present species, *P. hastatum*, from the Transkei, Orange Free State and Transvaal, *P. leucanthum* from Tembuland and the Orange Free State, *P. MacLoughlinii* from Griqualand East, and the little-known *P. Cooperi* recorded only from the Transkei. They are all terrestrial glabrous herbs with yellow or green and white flowers, occasionally touched with red near the apex. The name is derived from a combination of the two Greek words for wing and form, and means "wing-like or anything that covers or protects like wings," in reference to the hood-like or cowl-shaped upper portion of the flower composed of the comparatively large petals which adhere to the odd sepal. It should be noted that although this adherence is maintained throughout the life of the flower, it is but a light attachment; for the petal can be lifted intact from the sepal, and the perianth is actually composed of six free members, as in the great majority of the South African *Orchidaceae*. An exactly similar adherence is found in *Disperis* (see Plate 499, Fig. 5 and Fig. 7), but in the latter the lip ascends from the base up

the face of the column to its position under the hood, while in *Pterygodium* a small petaloid portion is produced below the point of attachment and is seen between the side sepals. Another difference between these closely allied genera lies in the spurred or pouched side sepals of *Disperis*, and it is interesting to observe that in *P. hastatum* the side sepals, besides being concave, have an appreciable pouch, thus providing an example which strengthens the relationship of the two genera.

The specific name alludes to the hastate or dagger-shaped form of the upper part of the lip with its spear-like tapering middle lobe.

The plant figured was collected by Dr. E. E. Galpin "in a moist grassy neck above the Columbia Mine, Pilgrim's Rest in Feb. 1937." It is the first *Pterygodium* to be figured in this work.

DESCRIPTION :—*Plant* 20 cm. high. *Leaves* 4, the lowest 2 sheath-like, 1.4 to 3 cm. long; the third leaf almost erect, clasping at base, the blade oval-linear, subacute, 10 cm. long, 2.2 cm. broad in the middle; uppermost leaf sheathing in the lower part, acuminate, 6 cm. long. *Raceme* rather densely 10-fl., flowers ascending. *Bracts* more or less clasping the ovary, acuminate, 1.5 to 0.8 cm. long. *Pedicels* 2 mm. long. *Odd sepal* oval, concave, hooded at the apex, 7 mm. long; side sepals spreading, obliquely ovate, acuminate, concave, slightly saccate, 8 mm. long. *Petals* almost semiorbicular, the free margin undulate and crenulate, excavate near the apex, very shortly clawed, 1 cm. long. *Lip* somewhat square in the petaloid portion when flattened, crenulate or lacerulate, 3 mm. long, the fleshy appendix 6 mm. long, bearing on the face of the lower half 2 conspicuous flaps, in the upper half 3-lobed, the middle lobe tapering upwards, incurved at the apex, much longer than the obtuse side lobes. *Column* short. *Ovary* 5 to 8 mm. long. (National Herbarium, Pretoria, No. 22,852.)—
L. BOLUS.

PLATE 751.—Fig. 1, odd sepal; 2, side sepal; 3, petal; 4, petaloid portion of lip; 5, column and lip, side view—enlarged.

F.P.S.A., 1939.



PLATE 752.

SCHIZODIUM MODESTUM.

Cape Province.

ORCHIDACEAE. Tribe OPHRYDEAE.

SCHIZODIUM *Lindl. Gen. et Sp. Orch.* p. 358; *Benth. et Hook. fil. Gen. Plant.* vol. iii. p. 631.

Schizodium modestum L. Bolus sp. nov.

Planta 15–19 cm. alta. *Folia* basalia 5, 2 inferiora ad vaginas reducta, cetera patentia, laminis parte superiore orbicularibus vel late ovalibus, parte inferiore in unquem angustatis, basi dilata amplectentiaque, 1·5–2 cm. longa; caulina 3, 2 superiora reducta, 1·2–1 cm. longa. *Racemus* laxe 3–5-fl. *Bracteae* erectae, basi amplectentes, ovatae, obtusae vel acutae, 1·5–0·5 cm. longa. *Pedicelli* erecti vel suberecti, gracillimi, 0·8–1·4 cm. longi. *Sepalum impar* adscendens, tumque calcare fere horizontali, vel porrectum, calcare adscendente, subcucullatum, oblongum, acuminatum, calcare basi conspicue constricto, profunde sulcato, itaque apice bilobulato, 0·8–1 cm. longum, calcare dimidium laminae fere aequante; sepala lateralia porrecta, oblique linearia, acuminata, 0·8–1 cm. longa. *Petala* suboblunga, apice inaequaliter biloba, lobo anteriore angustiore et posteriore circa duplo longiore, antice in lobum semiorbicularem integrum dilatata, 5–6 mm. longa. *Labellum* manu complanatum parte inferiore panduriforme, parte superiore subulatum vel rostratum, 0·9–1 cm. longum. *Rostelli brachia* elongata, superne divergentia. *Anthera* horizontalis.

CAPE PROVINCE:—Somerset West distr.; near De Beer's Dynamite Factory, July 1915, *A. T. Prentice in Bolus Herbarium* 13,900.

The wiry polished brown stems of *Schizodium* and its very slender habit of growth give this genus a particular charm and make it unique among South African Orchids. Bending, sometimes in fairly wide curves, sometimes in mere ripples, the stem (or scape) “appears to afford a maximum of strength with a minimum of resistance to the wind on the wind-swept plains where these plants usually grow.” Another distinguishing character of the genus is in the structure of the lip. There is the basal erect portion which is concave; then comes a constriction, more or less pronounced, before the second concave portion is directed forward, variously adorned with

markings in a contrasting colour; and finally the beak-like apical part which is deflexed and usually more intensely coloured than the rest of the flower. By reason of the constriction the lower portion of the lip when flattened becomes panduriform or fiddle-shaped.

All the nine species comprising the genus occur in the south-western districts, one of them extending northwards through Clanwilliam to the Vanrhynsdorp district and two eastwards to Port Elizabeth. The present species is most nearly allied to *S. obliquum* Lindl., and differs in having more acuminate sepals, minutely spotted or flecked with brownish-red on a ground-colour of grey, a relatively shorter spur (only about half the length of the limb of the sepal), and the anticus basal lobe of the petal with a quite entire margin. The specific name alludes to the inconspicuous colouring of the flower.

The plant figured was collected by Mr. A. T. Prentice in the Reserve of De Beer's Dynamite Factory, near Somerset West, in July 1915.

DESCRIPTION :—*Plant* 15 to 19 cm. high. *Leaves* basal 5, the lower 2 reduced to sheaths, the rest spreading, the blades orbicular or broadly oval in the upper part, narrowed into a claw in the lower part, dilated and clasping at base, 1.5 to 2 cm. long, the claw about as long as expanded portion; cauline leaves 3, the upper 2 reduced, 1.2 to 1 cm. long. *Raceme* laxly 3- to 5-fl. *Bracts* erect, clasping at base, ovate, obtuse or acute, 1.1 to 0.5 cm. long. *Pedicels* erect or suberect, very slender, 0.8 to 1.4 cm. long. *Odd sepal* ascending with the spur nearly horizontal, or porrect with the spur ascending, slightly hooded, oblong, acuminate, the spur conspicuously constricted at the base, deeply sulcate so that the apex appears bilobulate, 0.8 to 1 cm. long, the spur about half as long as the limb; side sepals porrect, obliquely linear, acuminate, 0.8 to 1 cm. long. *Petals* suboblong, unequally lobed at the apex, the anterior lobe narrower and about twice as long as the posterior, dilated anticusly at the base, the lobe semiorbicular, entire, 5 to 6 mm. long. *Lip* when flattened panduriform in the lower part, subulate or rostrate in the upper part, 0.9–1 cm. long. *Arms of the rostellum* elongated, diverging upwards. *Anther* horizontal.—L. BOLUS.

PLATE 752.—Fig. 1, flower; 2, odd sepal, front view; 3, do., back view; 4, side sepal; 5, petal; 6, lip— $\times 2$; 7, column and petals, front view; 8, column and lip, side view— $\times 4$; 9, column, front view; 10, do., side view; 11, pollinium—enlarged.

F.P.S.A., 1939.



. C. Letty del.

ADENIUM COËTANEUM.

Tropical Africa.

APOCYNACEAE. Tribe ECHITIDEAE.

ADENIUM, R. & S.; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 722.

Adenium coëtaneum Stapf in *Fl. Trop. Afr.* vol. iv. sect. 1, p. 227.

Adenium coëtaneum, figured on the accompanying plate, somewhat resembles the South African species *A. multiflorum* which is illustrated on Plate 16, but differs in the colour of the flowers. Our specimen was collected by Major J. Stevenson Hamilton, the Warden of the Kruger National Park, at Juba in Somaliland, and differs from the description of the species in having the cymes more than 2-flowered. From the records given in the Flora of Tropical Africa it is not an uncommon species.

Like several other species of the genus it has a swollen stem and succulent branches and would make a worthy addition to the rock garden. The large swollen stems found in the genus are also found in other species belonging to quite unrelated families. For example, some species of *Pelargonium*, *Cissus*, and *Cotyledon* have a similar habit of growth, and when such plants are not flowering or in a leafless state it is difficult to distinguish them.

We have found that the South African species of the genus are easy to establish in the garden and the rather handsome flowers make them quite attractive.

DESCRIPTION :—*Stem* from a thick tuberous base, varying from 4.5 cm. diameter at the base to 8 mm. diameter in the ultimate branches, glabrous. *Leaves* clustered near the apices of the ultimate branches, 3–6 cm. long, 1–2 cm. broad, oblanceolate, obtuse, shortly apiculate, densely and shortly pubescent above and beneath so as to have a velvety feel. *Flowers* dark pink, clustered with the leaves at the ends of

the ultimate branches. *Calyx-tube* 3 mm. long, densely pubescent; lobes 6.5 mm. long, lanceolate, subacute, densely pubescent. *Corolla-tube* 3 cm. long, 3 mm. diameter and cylindric at the base, then suddenly widened to 9 mm. diameter and tubular-campanulate above, densely pubescent without, hairy within along definite bands; lobes 1.4 cm. long, 1.2 cm. broad, obovate, with a short hairy apiculus, scantily pubescent on the back. *Filaments* 2 mm. long, flattened, pilose; anthers tailed at the base, with a linear pilose appendage 2 cm. long. *Style* 1 cm. long, cylindric, glabrous; stigma subglobose, with a frill at the base. (National Herbarium, Pretoria, No. 22,703.)

PLATE 753.—Fig. 1, median longitudinal section of flower; 2, a stamen; 3, top of style with stigma.
F.P.S.A., 1939.



PLATE 754.

CRASSULA ARGYROPHYLLA.

Transvaal, Swaziland, Rhodesia.

CRASSULACEAE.

CRASSULA Linn. ; Benth. et Hook. f. Gen. Plant. vol. i. p. 657.

Crassula argyrophylla Diels ex Schönl. and Bak. f. in Journ. Bot. 1903, p. 290.

This species was first collected by Dr. F. Wilms in the Lydenburg district of the Transvaal in the year 1888, and was again collected by Mr. D. F. Gilfillan near Johannesburg in February 1899. The published description of the species in 1902 was based on the above two gatherings.

The species is not uncommon in mountainous parts of the Transvaal and has been collected on several occasions within recent years. It is one of the characteristic succulents on the hills and mountains in the neighbourhood of Johannesburg and Pretoria, often being found on rocky outcrops more or less trailing over the rocks, varying from a few inches to a foot in height. In the National Herbarium, Pretoria, is a specimen, said to be collected at Brintjies Hoogte in the Somerset East district, with a note by Dr. S. Schönland that he is inclined to query the locality though he has seen a similar specimen stated to be from Aliwal North. The accompanying plate was prepared from a specimen collected by Miss M. E. Connell at Breedts Nek on the Magaliesberg range.

DESCRIPTION:—A succulent plant about 19 cm. high. *Stems* brown, 0·8–1 cm. diameter. *Leaves* a dullish green, sessile, 3–6 cm. long, 1·5–4·3 cm. broad, usually obovate or younger leaves sometimes oblong-obovate, rounded or very obtuse at the apex, with entire ciliate margins, papillate-pubescent on both surfaces. *Inflorescence* terminal, consisting of a number of cymes on a solitary peduncle. *Peduncle* 7–10 cm. long, with a pair of oblong bracts 4–9 mm. long

about the middle and a smaller pair just below the inflorescence, densely pubescent. *Bract* and *bracteoles* 3-3.5 mm. long, linear to linear-oblong, ciliate, papillate-hirsute on the back. *Calyx-lobes* 1.5 mm. long, lanceolate, obtuse, ciliate, papillate-hirsute on the back. *Corolla* 6 mm. diameter above when expanded; petals 3.5 mm. long, 1 mm. broad, linear-oblong, with a small mucro at the apex below the tip, very finely cartilaginous-ciliate on the margins, minutely papillate on the upper half on the back. *Filaments* 1.25 mm. long, linear; anthers, 0.25 mm. long. *Carpels* 2.5 mm. long, with several ovules in each carpel. *Squamae* 0.75 mm. long, slightly less than 0.25 mm. broad, oblong, truncate. (National Herbarium, Pretoria, No. 24,799.)

PLATE 754.—Fig. 1, a single flower; 2, median longitudinal section of a flower; 3, calyx; 4, corolla with stamens; 5, a single petal; 6, a carpel; 7, cross-section of a carpel; 8, a single scale.

F.P.S.A., 1939.



STREPTOCARPUS REXII.

Cape Province, Natal, Orange Free State, Transvaal.

GESNERIACEAE. Tribe CYRTANDREAE.

STREPTOCARPUS *Lindl. ; Benth. et Hook. f. Gen. Plant. vol. ii. p. 1023.*

Streptocarpus Rexii (*Hook.*) *Lindl. in Bot. Reg. t. 1173 (1828); Fl. Cap. vol. iv. sect. 2, p. 444 (1904).*

Didymocarpus Rexii *Hook. Exotic Flora, vol. iii. t. 227 (1827).*

On plate No. 666 of this work we included a plate as *S. Rexii* Lindl. that was collected in the Barberton district of the Transvaal. The name *S. Rexii* was accepted in the broad sense so as to include forms that differed from the typical form from the type locality. Subsequently we have been able to examine a larger range of living plants and are now of the opinion that the plant figured on plate No. 666 is *S. cyaneus* S. Moore and the same species as figured in the *Botanical Magazine* on t. 8521. While the two species are closely related, *S. cyaneus* may be distinguished from true *S. Rexii* in having a shorter corolla and a relatively wider throat.

From the Barberton district of the Transvaal we have received plants that are either forms of *S. Rexii* or undescribed species related to *S. Rexii*. This group of related plants (including *S. cyaneus*) that extend from Knysna through the eastern districts to the Drakensberg range in the Transvaal need further investigation before their affinities can definitely be settled. That the distribution-range of a species should extend from Knysna to the mountains of the north-eastern Transvaal is not so surprising, as we have records of other species with a similar distribution. Mr. B. L. Burtt, of Kew, who was good enough to examine some of our specimens, writes: "I am forced to admit, rather reluctantly I confess, that, Davison 118 from Berlin, Godwan River, Barberton

district is good *S. Rexii*. At least I can see no difference in the dried specimens, and it is not for want of trying, as I had hoped that *Rexii* would prove to be replaced by *S. cyaneus* in Swaziland and the eastern Transvaal."

The type of *S. Rexii* is the figure in Hooker's *Exotic Flora* (vol. iii. t. 227) which was drawn from a plant raised from seed collected by Bowie at Knysna between the years 1817-1822. The plant we figure on the accompanying plate was collected by Mr. G. W. Reynolds five miles from Port St. Johns in Pondoland, and, though of a darker colour and having a somewhat broader limb than the type-illustration, can scarcely be more than a minor form of *S. Rexii*. It was found growing on almost vertical rock ledges in mossy shady places. The specimen flowered in Pretoria at the Division of Plant Industry in April 1939.

DESCRIPTION :—A herbaceous acaulescent plant. *Leaves* varying much in size on same plant according to age, 8-27 cm. long, 2-8 cm. broad, lanceolate, obtuse, narrowing at the base, dark green above, paler beneath, with the midrib very prominent (about 5 mm. in diameter at base of larger leaves) and the lateral veins prominent, erenate and ciliate on the margins, semi-scabrid above with bulbous-based hairs, somewhat coarsely pubescent beneath. *Peduncle* 13-18 cm. long, 3 mm. diameter, pubescent. *Flowers* usually solitary, sometimes 2 on a peduncle. *Calyx-lobes* 9 mm. long, 1 mm. broad at the base, obtuse, pilose-setose from brownish bulbous bases. *Corolla-tube* 6 cm. long, 1.7 cm. diameter above, 4 mm. diameter below, glandular-pilose without and within the mouth, pale blue with dark maroon and pink lines in the throat and mouth; limb sub-bilabiate, 5 cm. diameter; lobes 1.7 cm. long, 2 cm. broad, somewhat ovate, rounded above. *Free portion of filaments* 1.1 cm. long, glandular-hairy especially near the apex, kneed at junction of portion of filament adnate to the corolla-tube; staminodes about 3 mm. long; anthers 4 mm. long, cohering by their faces, with a pale blue band on the back of the thecae. *Ovary* 4 cm. long, 1.5 mm. diameter, cylindric, 2-chambered, pubescent; style a short continuation of the ovary bearing a fleshy ring as the stigma. (National Herbarium, Pretoria, No. 24,802.)—E. P. P.

PLATE 755.—Fig. 1, calyx; 2, median longitudinal section of corolla; 3, portion of corolla showing stamens and staminodes; 4, pistil; 5, stigma; 6, cross section of ovary.

F.P.S.A., 1939.



PLATE 756.

STREPTOCARPUS MEYERI.

Cape Province.

GESNERIACEAE. Tribe CYRTANDREAE.

STREPTOCARPUS Lindl. ; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1023.

Streptocarpus Meyeri B. L. Burtt in *Kew Bull.* 1939, 75.

S. parviflorus E. Mey. [*Zwei Pflanzengeogr. Docum.* 152 : 1843—nomen nudum] ex C. B. Clarke in *DC. Mon. Phan.* vol. v. p. 152 (1883), et in Dyer, *Fl. Cap.* vol. iv. sect. 2, p. 445 (1904)—not of Hook. f.

This species was first mentioned, by name only, as *Streptocarpus parviflorus* by E. Meyer in the year 1843, having been collected by Drège between the "Omsamwubo and Omsamcaba" rivers. The first description under this name, however, refers to another species, and it is to this that the name *S. parviflorus* must be applied.* The species now illustrated was called *S. parviflorus* in "Flora Capensis," but has now been renamed *S. Meyeri* (see *Kew Bulletin*, 1939, 73 for full discussion of the nomenclature).

Our plate was prepared from specimens that flowered at the Division of Plant Industry, Pretoria, in April 1939. The original plants were collected by Mr. J. Erens on the southern slopes of mountains near Grahamstown, in shady places among grass in rich loamy soil.

As will be seen from the figure, the species is an exceptionally delicate and graceful one and well worthy of the attention of horticulturists.

DESCRIPTION :—An acaulescent plant. *Leaves* 5–13 cm. long, 3–6 cm. broad, ovate, ovate-oblong, or oblong, obtuse, crenate and ciliate on the margins, rugose and hispid above, almost villous beneath and with the midrib and primary laterals very prominent. *Peduncle* up to 20 cm. long, bear-

* *S. parviflorus* Hook. f. in *Bot. Mag.* t. 6636 (1882). *S. luteus* C. B. Clarke in *DC. Mon. Phan.* vol. v. p. 153 (1883).

ing usually 4 flowers, about 2 mm. diameter, pubescent. *Peduncle* 5-7 mm. long, glandular-hairy. *Sepals* 3 mm. long, lanceolate, glandular-hairy. *Corolla* sub-bilabiate; tube 1.5 cm. long, 4 mm. diameter, glandular-hairy without, hairy within; lobes 6 mm. long, 6 mm. broad; the 2 lower somewhat ovate and with entire margins; the 3 upper somewhat obovate with slightly irregular margins. *Stamens* at the base of the corolla-tube; filaments 5 mm. long, glabrous; anthers connate, 2 mm. long; staminodes below the fertile stamens, 1.5 mm. long, linear. *Ovary* 9 mm. long, about 1 mm. diameter below, tapering above, 1-chambered, with many ovules on 2 placentae which protrude from the walls, sometimes the 2 placentae joined making the ovary 2-chambered, densely glandular-hairy; stigma a fleshy ring, minutely glandular-hairy. (National Herbarium, Pretoria, No. 24,801.)—E. P. P.

PLATE 756.—Fig. 1, calyx; 2, longitudinal section of corolla; 3, pistil; 4, stigma; 5, 6, cross-sections of ovary.
F.P.S.A., 1939.



PLATE 757.

HUERNIA HYSTRIX.

Transvaal, Zululand.

ASCLEPIADACEAE. Tribe STAPELIEAE.

HUERNIA *R. Br., Benth. et Hook. f. Gen. Plant.* vol. ii. p. 784.

Huernia hystrix *N. E. Br. in Fl. Cap.* vol. iv. sect. 1, p. 911.

In previous volumes we have figured several species of the genus *Huernia* though this is the first opportunity we have had of illustrating *H. hystrix*. When the specimen was first collected in the year 1932 by Dr. H. G. Schweickerdt at Mokeetsi in the northern Transvaal, it was thought to be a species allied to *H. hystrix*. Since then the publication *The Stapelieae* by Messrs. White and Sloane has appeared, from which it is evident that the species is a very variable one, so much so, that it has not been possible to affix varietal names to the many forms that have been collected. In the circumstances, therefore, we feel more justified in regarding our plant merely as a form of that species. From typical *H. hystrix* it differs in the depth, width, and shape of the corolla-tube; the colour, shape, position, and size of the outer-corona; the shape and venation (5 veins instead of 3) of the corolla-lobes.

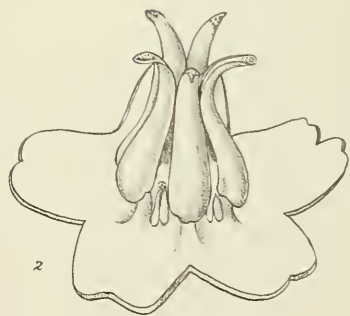
The specimen collected by Dr. Schweickerdt was grown and bloomed at the Division of Plant Industry, Pretoria, in February 1933.

DESCRIPTION:—*Stem* clear green, 7 cm. high, slender, 5-angled, glabrous, with prominent teeth. *Teeth* 4 mm. long and approximately 1 cm. apart, hardening into spines from a conical base. *Peduncle* hardly evident, arising at the base of the young shoots. *Flowers* in cymes, developing in succession. *Pedicel* 4 cm. long, spreading and bending downwards, glabrous, with a narrow-linear subulate bract about 8 mm. long at the base. *Sepals* 7 mm. long, lanceolate, long-acuminate, glabrous. *Corolla* 4 cm. diameter, subpentagonal,

mottled with red and rough on the outside, glabrous; tube 7 mm. deep, 16 mm. diameter outside, constricted at the mouth by the thickening of the tube, banded inside with purple-brown stripes, with the mouth densely covered with spotted subulate papillae varying from small lumps to 4 mm. in length and with the longest massed on the rim of the tube and spotted and banded with purple-brown; lobes 10 mm. long, 13 mm. broad, deltoid, prominently 5-veined on the backs, sulphur yellow on the upper surface and spotted with brown and thickly papillate with short spotted processes; teeth alternating with the lobes 3 mm. long, acuminate. *Outer corona* white, situated like an inverted basin on the floor of the tube, shortly 5-lobed; outer lobes 1 mm. long, 2.5 mm. broad, rectangular, irregularly and bluntly 3-toothed; inner lobes yellow, dotted on the upper part with purple-brown, 6 mm. long, slightly higher than the mouth of the tube, much exceeding the staminal column, linear, with a dorsal crest low down, spreading and expanded above into a hoof-shaped portion that is spotted on the face. (National Herbarium, Pretoria, No. 15,273.)

PLATE 757.—Fig. 1, a calyx-lobe; 2, median section through corolla showing the corona; 3, back view of flower showing the five veins on corolla; 4, outer corona; 5, inner corona seen from above; 6, a lobe of inner corona.

F.P.S.A., 1939.



C. Letty del.



PLATE 758.

HUERNIA HISLOPII.

Southern Rhodesia.

ASCLEPIADACEAE. Tribe STAPELIEAE.

HUERNIA R. Br., *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 784.

Huernia Hislopiae Turrill in *Kew Bulletin* 1922, p. 30.

The species we figure on the accompanying plate is one of the many living succulents collected by Mr. G. van Son on the Vernay-Lang Kalahari Expedition. The particular specimen illustrated was found on hills between Umvuma and Fort Victoria and was grown and flowered at the Division of Plant Industry, Pretoria. The photograph (Fig. 1006) reproduced by White and Sloane in *The Stapelieae* is from the same collection, though the stems are more robust than in the specimen we figure; our specimen agrees more with Fig. 1007—a reproduction of a photograph taken by Mr. Carl Luckhoff. The species was originally described by Dr. W. B. Turrill from a specimen collected in Southern Rhodesia and which flowered at the Royal Botanic Gardens, Kew. *H. Hislopiae* is allied to *H. barbata*, which we figured on Plate 468, and a comparison with this plate will illustrate the points of difference between the two species.

DESCRIPTION :—A rather delicate succulent, about 9 cm. high. *Stems* branched, 4·5–7 mm. in diameter, 5-angled, with the angles obtuse and bearing teeth 2 mm. long. *Flowers* solitary. *Pedice*l 8 mm. long, terete. *Calyx-lobes* 6 mm. long, ovate-lanceolate, long acuminate, glabrous. *Corolla-tube* 1·2 cm. long, 9 mm. diameter below, broadening out to 2 cm. diameter above, covered with papillae within especially on the narrow portion of the tube; lobes 1 cm. long, ovate, acuminate. *Outer-corona* 7 mm. diameter, consisting of 5 black oblong bilobed lobes; inner corona-lobes 3·5 mm. long,

lanceolate-linear, recurved at the apex, overtopping the staminal column. (National Herbarium, Pretoria, No. 20,156.)

PLATE 758.—Fig. 1, section of portion of corolla showing papillae;
2, corona.
F.P.S.A., 1939.



PLATE 759.

ALOE AFFINIS.

Transvaal.

LILIACEAE. Tribe ALOINEAE.

ALOE Linn. ; Benth. et Hook. f. Gen. Plant. vol. iii. p. 776.

Aloe affinis Berger in Engler, *Pflanzenreich*, IV. 38, iii. 2, p. 206.

We are indebted to Dr. F. Z. van der Merwe, not only for the specimen we have illustrated and which he collected at Schoeman's Kloof in the Transvaal, but also for the interesting account of the species as observed in the veld. On Plate 342 we figured an *Aloe* as *A. affinis*, but according to Dr. van der Merwe this is possibly a form of *A. parvibracteata* Schönl. from the eastern Transvaal. *A. affinis* grows in the folds of the Drakensberg in the eastern Transvaal at an altitude of 4,000–5,000 feet above sea level. It is found from Slaaihoek in the south to Marieps Mountain in the north, and from Lydenburg in the west to Sabie in the east. Although plentiful, it does not seem to establish very large colonies and apparently favours a sandstone or quartzite soil formation. It does not frequently grow under trees, but prefers grassy slopes. The flowering period is from April to August or even to September. The species is distinguished from its nearest relative among the *Saponariae* (*A. Greatheadii* Schönl.) by its more elongated racemes of large well-formed flowers of a uniform bright pink colour, and by the usual (but not invariable) absence of whitish maculae on the leaves. From *A. graciliflora* Groenw. it differs by its freer branching and from *A. barbertoniae* Pole Evans in its denser shorter and usually more erect racemes.

To the south-east and east (Schagen), this *Aloe* may gradually take on the characteristics of *A. barbertoniae*, and round Ohrigstad it hybridises freely with *A. longibracteata* Pole Evans (see Plate 299), which flowers from July to

September. South of Ohrigstad is found a form of *A. affinis* with longer racemes of smaller flowers. Near Branddraai, *A. affinis* crosses with a form of *A. chimanimaniensis* Christian (see Plate 639), and about Marieps Mountain it resembles a form of *A. Greatheadii* which grows not far off, while over Manoutsa it seems to be continuous with the shorter-racemed and more brightly coloured *A. immaculata* Pillans.

DESCRIPTION:—*Stem* short or absent. *Leaves* about 20, in a widely spreading rosette, up to 40 cm. long, up to 12 cm. broad at the base, sometimes dry at the apex, armed with dark brown spines along the margins and often showing a brown horny ridge between the spines, slightly concave above, convex below, rarely maculate but often showing dark longitudinal stripes. *Inflorescence* 50 cm. or more high, branched about the middle, usually with about 6 branches. *Racemes* up to 30 cm. long, only moderately lax, conical to pyramidal. *Bracts* short. *Perianth* bright pink, usually 3.5 cm. long, distinctly curved, swollen and 9 mm. diameter above the ovary, then constricted and widening to 8 mm. diameter above; segments very slightly recurved. *Anthers* just exerted. (National Herbarium, Pretoria, No. 24,940.)

PLATE 759.—Fig. 1, median longitudinal section of flower.
F.P.S.A., 1939.





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PLATE 760.

CARALLUMA ARENICOLA.

Cape Province.

ASCLEPIADACEAE. Tribe STAPELIEAE.

CARALLUMA R. Br. ; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 782.

Caralluma arenicola N. E. Br. in *Fl. Cap.* vol. iv. sect. 1, p. 883.

This somewhat rare species of *Caralluma* was collected by the late Mr. G. J. de Wÿn in one of the type localities, viz. the Prince Albert district. Specimens were grown and flowered at the Division of Plant Industry in February 1937, and from these specimens our plate was prepared. The species belongs to a section of the genus characterised by having the corolla-lobes $\frac{1}{4}$ – $\frac{7}{12}$ in. long, and this is the first opportunity we have had to illustrate a species from this particular group. Good photographs of specimens belonging to the species are given by White and Sloane (*The Stapelieae*, pp. 344–45), but this is the first occasion so far as we know that a coloured illustration has been published.

DESCRIPTION:—*Stems* branching, 4-angled, 1·5–2 cm. broad; teeth on angles of stems acute, becoming blunt in the older stems. *Flowers* fascicled near the base of the young growths. *Pedice*l 3 mm. long. *Sepals* 2 mm. long, ovate-lanceolate, acute. *Corolla-tube* greyish, with a band or blotches of purple, minutely hairy with purple hairs on the upper half, pustulate on the rim, 5 mm. long, 5 mm. diameter above, campanulate, glabrous; lobes 1·1 cm. long, 3 mm. broad at the base, strongly reflexed so that a narrow channel is formed, acute, glabrous. *Outer corona* forming a basin-shaped body, yellowish with purplish spots and blotches and with each lobe minutely 2-toothed; inner lobes 1·5 mm. long, 0·5 mm. broad, linear, obtuse, incumbent over the anthers. (National Herbarium, Pretoria, No. 22,851.)

PLATE 760.—Fig. 1, median longitudinal section of a flower; 2, a single corolla-lobe; 3, corona.
F.P.S.A., 1939.

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